



# MACRO MEALS FUNCTIONAL SPECIFICATION 2022



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## Introduction

The purpose of this document is to outline the functionality of the Macro Meals project. The goal of this project is to create an application that will suggest recipes based on the user's concerns. These concerns include time, costs, weight management, reducing carbon footprint and dietary requirements. Once registered and logged in users can save recipes for future use.

Firstly the document will highlight the target audience for the application and it will also discuss the system architecture.

Finally, the document will outline a use case diagram and context which shows how the users interact with the application. In the model section, the FURPS+ mode will be discussed.

## Project Overview

The goal of this project is to provide an application that will provide personalised recipes to its users, based on their concerns.

Some concerns of the users include:

- Weight management
- Lowering food costs
- Saving time
- Reducing carbon footprint
- Cooking meals for small or large numbers
- Dietary requirements

The target audience for this app is a niche market. It is only for people who have no time for cooking or cooks who are conscious about their carbon footprint and meal costs. With the increase in global warming and the cost of living, many cooks have been conscious of their carbon footprint and the cost of meals.

This app will assist its user with their concerns by providing personalised recipes based on various requirements such as cost, time, carbon footprint and available ingredients.

The Business Model Canvas is a from the vision document which was initially drafted to plan the project.

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments
Chefs shops e.g Aldi,Lidl,Tesco	recipe recommendations	Convenient Personalised Recipes	Online	Conscious cooks
	food nutritional information		Email for queries	
	Carbon footprint information			
	<b>Key Resources</b>		<b>Channels</b>	
	Code for app		Webapp Website	
<b>Cost Structure</b>			<b>Revenue Streams</b>	
Upkeeing of Webapp on servers			Possible ads on site	

Figure 1, Business Model Canvas

## Obstacles

One of the main obstacles I will have to overcome is finding users to use the app.

I will need to make the app useful by providing a strong value proposition, easy to use on the UI side and make it free to allow users to access it easily.

The main obstacle that I may face is finding the correct API for recipes, it will have to include multiple cuisines and have dietary-specific recipes including vegan and vegetarian.

Another obstacle I may face during the development of this project is API access. An API is an Application Programming Interface which is a software interface that allows two applications to exchange information with each other. The recipe and nutritional information Trying to find the correct API with recipe information and nutritional information may be a challenge.

## Target Platforms

The target platform for this project will be a web app. Web apps are an application that runs on the user's browser. A web app will be used for this project as no download is necessary and many users can easily access it with only their browser. The browser can be accessed from any device regardless of the operating system. This will allow its users to use any device for their personalised recipes. Web apps are easier to build and launch than regular mobile apps, which need to be approved by the app store.

The one disadvantage of using a web app is that they rely on the user to have an internet connection at all times.

## Context Diagram

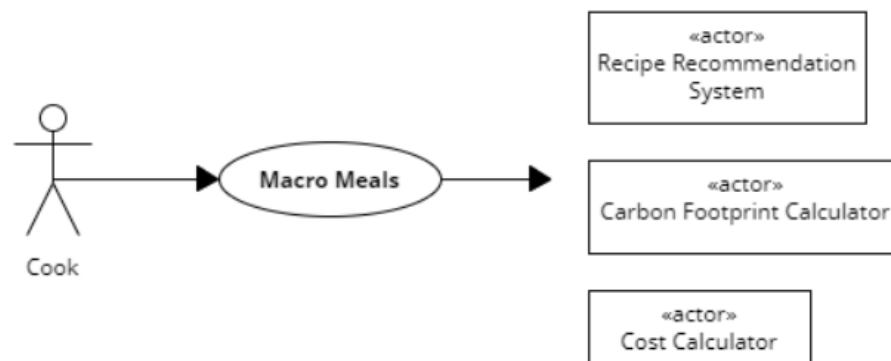


Figure 2, Context Diagram

# Use Case Diagram

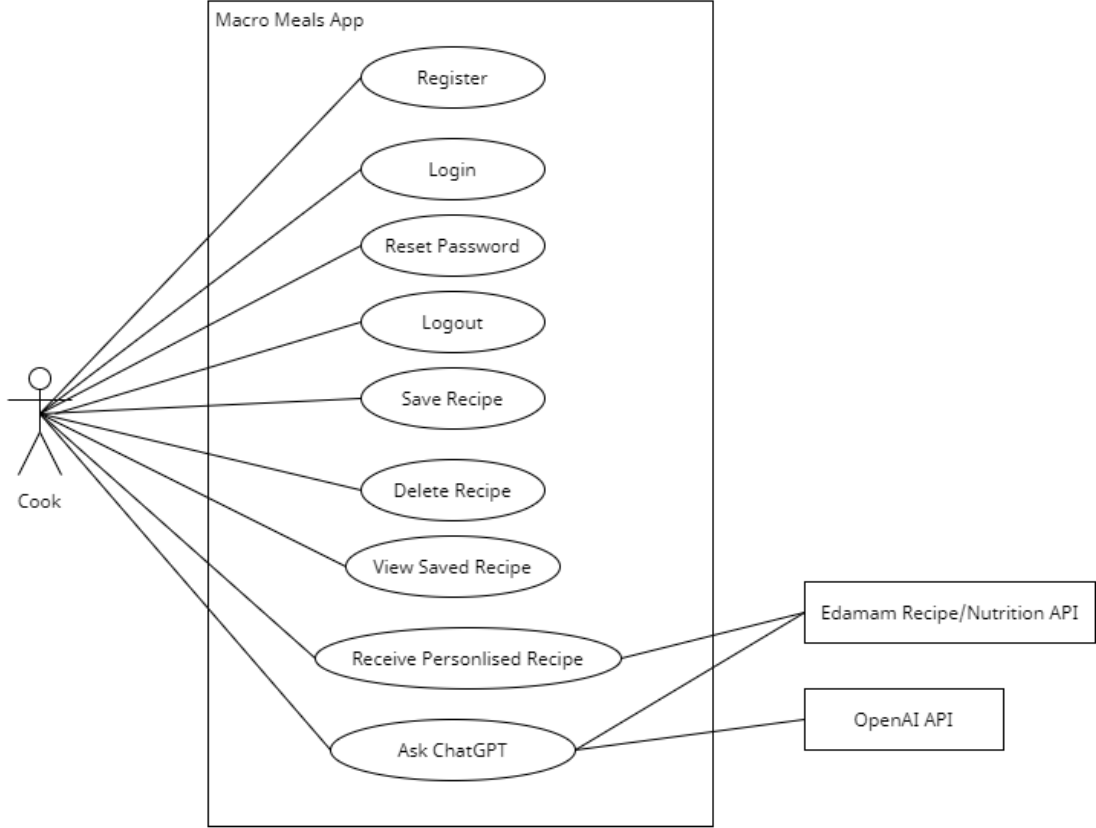


Figure 3, Use Case Diagram

## Brief Use Cases

**Use Case:** Register

**Actor:** Cook

**Description:** This use case begins when the cook initially launches the application and wishes to register for the application. The cook enters their information including username and password. The system records this information and registers them to the application.

**Use Case:** Login

**Actor:** Cook

**Description:** This use case begins when the cook launches the application and wishes to log in to their account. The cook enters their username and password. The system validates the cook and grants them access to the application.

**Use Case:** Reset Password

**Actor:** Cook

**Description:** This use case begins when the cook wants to reset their password. The cook enters their email address and the new password they wish to be set. The system updates the password.

**Use Case:** Logout

**Actor:** Cook

**Description:** This use case begins when the cook wishes to log out of the application. The cook presses the logout button. The application successfully logs out the user.

**Use Case:** Save Recipe

**Actor:** Cook

**Description:** This use case begins when the cook wishes to save a recipe. The cook clicks the save button and the system adds it to the database.

**Use Case:** Delete Recipe

**Actor:** Cook

**Description:** This use case begins when the cook wishes to delete a recipe. The cook clicks the delete button and the system deletes it from the database.

**Use Case:** View Saved Recipe

**Actor:** Cook

**Description:** This use case begins when the cook wishes to view a saved recipe. The cook clicks the saved recipes button and the system displays all recipes from the database.

**Use Case:** Receive Personalised Recipe

**Actor:** Cook, Edamam Recipe/Nutrition API

**Description:** This use case begins when the cook wishes to receive a personalised recipe. The cook then enters the available ingredients. The cook can also add any extra information such as meal type and dietary requirements for a more personalised recipe suggestion. The system uses this information and generates multiple recipes using the API for the cook.

**Use Case:** Ask ChatGPT

**Actor:** Cook, Edamam Recipe/Nutrition API, OpenAI API

**Description:** This use case begins when the cook wishes to ask ChatGPT for carbon-friendly alternatives for a personalised recipe. The cook selects the Ask button and ChatGPT responds with an answer. The system displays the answer to the cook

## Detailed Use Cases

**Use Case:** Register

**Actors:** Cook

**Brief Description:** This use case begins when the cook wishes to register to the Macro Meals Application. The cook must register an account for them to save recipes.

**Main Success Scenario:**

1. The cook wants to register.
2. The cook enters a username, email and password.
3. The application encrypts the password and stores it.
4. The cook is directed to the dashboard page

**Alternatives**

3a. The username already exists.

1. An error message is displayed saying "Username already registered".
2. The cook is redirected to step 2.

**Use Case:** Login

**Actors:** Cook

**Brief Description:** This use case begins when the cook wishes to log in to the Macro Meals Application. By logging in the cook can save recipes for later use.

**Main Success Scenario:**

1. The cook wants to log in.
2. The cook enters a username and password.

3. The application verifies this information.
4. The cook is directed to the dashboard page

#### **Alternatives**

- 2a. The Cook enters incorrect information.
  1. An error message saying "Wrong username/password".
  2. The cook is redirected to step.
  - 3.

#### **Use Case: Reset Password**

**Actors:** Cook

**Brief Description:** This use case begins when the cook wishes to reset their password.

#### **Main Success Scenario:**

1. The cook wants to reset the password.
2. The cook enters their email, and new password.
3. The cook repeats their new password.
4. The application updates the password.
5. The cook is redirected to the login page.

#### **Alternatives:**

- 3a. The two passwords don't match.
  1. Error message is shown to the user.

#### **Use Case: Logout**

**Actors:** Cook

**Brief Description:** This use case begins when the cook wishes to log out of the Macro Meals Application.

#### **Main Success Scenario:**

1. The cook wants to log out.
2. The application logs out the cook.

#### **Use Case: Save Recipe**

**Actors:** Cook

**Brief Description:** This use case begins when the cook wishes to save a personalised recipe. This can be used later for cooking.



**Main Success Scenario:**

1. The cook wants to save the recipe.
2. The application stores the recipe information.

**Alternatives**

2a. The recipe is already saved.

1. The same recipe isn't saved twice.

**Use Case: Delete Recipe**

**Actors:** Cook

**Brief Description:** This use case begins when the cook wishes to delete a saved personalised recipe.

**Main Success Scenario:**

1. The cook wants to delete a recipe.
2. The application removes the recipe information.
3. The application shows the updated saved recipes.

**Use Case: View Saved Recipe**

**Actors:** Cook

**Brief Description:** This use case begins when the cook wishes to view all the saved personalised recipes.

**Main Success Scenario:**

1. The cook wants to view the recipes.
2. The application displays all the recipes on the screen.

**Alternatives**

2a. The user has no recipes.

2. An error message is displayed saying "Sorry you have no Recipes Saved".

**Use Case: Receive Personalised Recipe**

**Actors:** Cook, Edamam Recipe/Nutrition API

**Brief Description:** This use case begins when the cook wishes to receive a personalised recipe based on their inputted ingredients.

**Main Success Scenario:**

1. The cook selects the option to generate a recipe.

2. The Web App displays various input fields for available ingredients, cost, carbon footprint level and dietary needs.
3. The cook enters the required details.
4. The Web App sends this information to the necessary APIs.
5. The Web App displays the generated recipe ideas.

#### **Alternatives**

- 2a. The cook enters invalid information (e.g wrong information in input fields)
  1. The Web App sends back an error advising the cook to enter the correct information.
- 4a. The Web App has no internet connectivity
  1. The web App displays an error to the cook to reconnect.

#### **Use Case: Ask ChatGPT**

**Actors:** Cook, Edamam Recipe/Nutrition API, OpenAI API

**Brief Description:** This use case begins when the cook wishes to receive an AI suggestion for carbon-friendly alternatives for a generated recipe.

#### **Main Success Scenario:**

1. The cook selects the option to ask ChatGPT.
2. The web app uses the ingredients of the recipe to ask ChatGPT for carbon-friendly alternatives.
3. The results are displayed to the cook.

#### **Alternatives**

- 2a. The OpenAI API has reached its limit.
  1. The Web App sends an error message and sends the cook back to the previous page.

## **Model**

The FURPS+ requirements are in view of all the use cases.

## **Functionality**

- Cooks must be able to receive recipes after inputting ingredients, meal types and dietary requirements.
- Cooks must be able to log in to save, delete and retrieve recipes.
- Cooks must be able to query ChatGPT for carbon-friendly alternatives.
- Cooks must be able to register for an account to save recipes.
- Cooks must be able to securely logout.
- Cooks must be able to view the cooking instructions for the recipes.

## Usability

- The front end must be aesthetically pleasing.
- The application must launch within 3-4 seconds.
- The cook must be able to navigate throughout the website with ease and page loads must be less than 2 seconds.
- The UI must be clear and easy to navigate on desktop and mobile devices. The cook must be able to easily register and access their saved recipes.
- The cook must be able to save/retrieve recipes within 3 seconds.

## Reliability

- The suggested recipes returned must according to the cook's inputted filters such as allergies. Having inaccurate results could be life-threatening.
- The application must log in and save recipes to the correct user accounts.
- The cook must receive helpful carbon footprint alternatives from ChatGPT.

## Performance

- The application must have a 99% uptime.
- The cook must be able to receive a recipe within 3-5 seconds.
- The cook must be able to save and view their recipe within 2-3 seconds.

## Supportability

- The ingredients quantity must be available to view in imperial and metric measurements. This will support multiple users all over the globe.

+

- All information sent via the browser must be through an HTTPS protocol.
- All passwords must be hashed and stored securely.

## Iteration Schedule

### First Iteration

During the first iteration development for the main use case “Receive Personalised Recipe” will begin. For the first iteration, not all functions of the use case will be developed there will be a large focus on suggesting recipes based on a list of ingredients and allowing the option for filtering special diets and allergies.

## Second Iteration

During the second iteration, there will be a large focus on developing the “Save Recipe” use case and a login/register feature using a SQL database. Development of the previous use case “Receive Personalised Recipe” will still be continued after receiving feedback. From the feedback gathered from users, all the recommendations will be incorporated for the second iteration. These features are minor and have no real effect on the application's functionality, so they will be developed near the end of the second iteration. Along with that the converting from metric and imperial of liquids only will also be added.

## Third Iteration

During the third and final iteration the remaining new functionality will be implemented this includes:

- Carbon footprint estimator
- Cost estimator
- ChatGPT implementation

Feedback gathered from iteration 2 will also be addressed. The ChatGPT recommendations functionality will be added. Finally, changes will be made to the GUI to make it as simple and easy to use.

## First Iteration Feedback

After sharing the first iteration of the Macro Meals app with 4 of my friends and family here is some feedback I received. The URL to the web app was shared with them. This was reviewed both on desktop and mobile devices.

### Pros

- Simple and easy to use.
- Decent amount of recipes.

### Cons

- A designated “back” button is needed, instead of using the browser’s back button on the desktop.
- The dropdown should show which items are selected or how many are selected.
- Fix the spacing of dropdowns on some mobile devices.
- Too many dropdowns, looking too squashed together on some mobile devices.

## Second Iteration Feedback

### Pros

- Can log in and save recipes
- Looks nice on a mobile view

### Cons

- Add a filter option for the results page
- Found an error when clicking home sometimes logs users out
- Too much going on in the recipe card maybe change to only red and green lights