

PROJECT REPORT

Cookbook Pro (a Cloud Enabled Web Application)

CIS 3296
Fall 2023

Team Members:

- Michael Dantuono
- Shawn Dutill
- Jayming Liu
- Oladapo Emmanuel Oladele
- Brandon Zheng

Repository URL:

<https://github.com/cis3296f23/project-04-cookbook-pro>

Table of Contents

Product Proposal.....	3
Project Abstract.....	3
Conceptual Design.....	3
Proof of Concept.....	3
Background.....	4
Required Resources.....	4
Product Vision.....	5
Features.....	5
Personas.....	6
Persona 1: Bodybuilder - Written By Mike.....	6
Persona 2: Vegetarian - Jayming Liu.....	6
Persona 3: Working Parent - Written By Brandon.....	7
Persona 4: Family Momma - Shawn D.....	7
Persona 5: IT Specialist(Employee) - Oladapo Emmanuel Oladele.....	7
UML Class Diagram.....	8
UML Sequence Diagram.....	9
Project Progress:.....	11
Week 1:.....	11
Week 2:.....	12
Week 3:.....	13

Product Proposal

Project Abstract

This document outlines a proposal for the development of a web application aimed at assisting users in designing and managing existing meal plans & generating grocery lists. Users will have the ability to search for existing meals to add to their list of meals through the week, as well as save those meals, and customize them. Meals will be organized into groups, and a comprehensive grocery list will be automatically generated based on the ingredients required for those meals. Ingredient amounts will be totaled across all meals in the order, so that the user can make the most efficient purchases possible. These meals will come originally from a third-party collection of web scraped data online. Additionally, a summary report will be sent to the user's email, summarizing the included meals and ingredients. Meals will be tagged with qualitative data so that attributes such as taste preferences and nutrition can be tracked and accounted for.

Conceptual Design

The application will be multi-page and written in TypeScript, a fully fledged Object Oriented programming language. The frontend will be HTML, CSS, & leverage the use of a component based framework, such as React Native. The home page is a list of meals that currently exist in the system. Here the user can scroll through each meal and adjust its data by clicking an edit button. At any time the user can add their meal to the current order, a preview of which appears somewhere to the top right of the screen. Clicking on the current order preview takes the user to a review of their order where they must confirm their order is correct.

All meal data originates from the Spoonacular API, which comes in the JSON format. When a user wants to edit any information about a specific meal, or ingredient, a copy of that data is added to a Firebase NoSQL database to be stored & tied to the current user account. The meals' values and images are loaded directly to the webpage. An example of a meal's data can be seen at the following address: <https://spoonacular.com/food-api/docs#Get-Recipe-Information>

The quantity of each unique ingredient in each meal will be totaled so that the total amount needed for the entire order can easily be ascertained by the user during their shopping trip. Each meal has a frame where all of the ingredient data is collected. Ingredients of saved meals are stored in an ingredient list, so that ingredients can be shared across meals. Users have the option of editing any of the currently existing example meals in the app, creating their own meals through the web app itself, or, if time permits, loading meals from a template Excel sheet.

The API used can generate shopping lists, and then the nodemailer library will assist in the distribution of emails containing these shopping lists. Other components could include the ability to track meal tastes and preferences of the user, a complex GUI.

Proof of Concept

<https://spoonacular.com/food-api/docs>

Above is the documentation for the Spoonacular API.

Background

The goal of this project is essentially to consolidate and simplify the process of meal planning as well as eliminate the barriers involved with making smart nutrition & financial decisions. I often find myself at the grocery store wasting time trying to think about what I want for the next week, when the process could be simplified drastically. It also mitigates the temptation for impulse buying unhealthy foods, because if it's not on the list then you know not to get it.

Required Resources

From a developers perspective, Node.js (npm), TypeScript, & a Firebase account are the three core components necessary for this application to run. It can be rendered in a web browser, and the one chosen for this application is Google Chrome. From a user's perspective, all they require is a web browser and a Google Mail account so that they can log in and connect to their specific profile. Firebase handles account credential verification automatically.

Product Vision

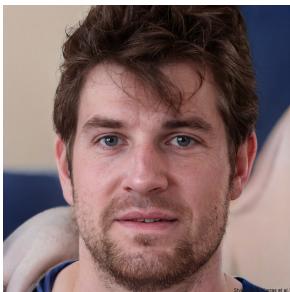
For busy people who care about what they eat, CookBook Pro is the meal planner that puts them in complete control easier than ever before. Unlike other apps, our product provides the most utility and customization.

Features

- Log into the application using their Google credentials
- Search for existing meals sourced from Spoonacular
- Filter search results based on taste, dietary restrictions, etc
- Read specific details for a selected meal
- Customize any attribute of any meal or ingredient
- View previously customized meal & ingredient data
- Add meals to an “order”
- Review & edit the order at any time
- Submit the order & receive an email with their grocery list
- Receive a separate email with instructions on how to make that meal

Personas

Persona 1: Bodybuilder - Written By Mike



Chris, age 27, is a professional bodybuilder who recently moved to New York City. His everyday consists of going to the gym, training others, and maintaining a strict diet so he is able to qualify for Mr. Olympia. He was born in a rural area where there wasn't much to do besides outdoor activities. He has a degree in exercise science from Kings College. With that being said, he enjoyed working out and spent most of his free time doing so.

Chris has noticed that he has been having trouble planning his meals based on nutritional value. As a bodybuilder he has to hit a certain goal everyday such as 250 grams of protein, 488 grams of carbs, and a total of 4,000 calories. Not only is he struggling to plan meals, but he is also very busy as he has to train himself and others. Chris is looking for a way to plan his meals, know the nutritional value, and make it easier for him to get in and out of the grocery store. He is particularly interested in using Cookbook Pro to search up meals based on nutritional value, add them to a list and quickly find them in the grocery store, ultimately making the most efficient use of his time.

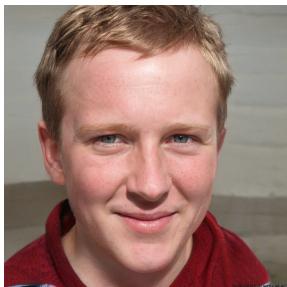
Persona 2: Vegetarian - Jayming Liu



Emily, an art school student, works part time at a local cafe and takes commissions for her work after one of her pieces on factory farms became popular online. She tries her best to be vegetarian after she became aware of the ethical and environmental impacts of her food choices and through her art wants to spread the message. But because of her busy schedule, she either has no time for meal planning and preparation, or can't afford to order from or eat at any vegetarian restaurants. She's passionate about her ideals but often finds herself stuck with meal choices that don't align with her vegetarian values.

Emily's lifestyle choices are something she holds dearly and she's not ready to give up just yet. She believes everyone needs to do their part in protecting the environment and not eating meat is the first step to take in reducing carbon footprint and not supporting terrible farming practices. Being an art student she's familiar with using complex software but most of the time wants something simple and easy to use. This is why she's interested in using Cookbook Pro, which will let her quickly and easily pick and plan vegetarian and vegan meals.

Persona 3: Working Parent - Written By Brandon



Bryan is a single father of 2 children ages 9 and 11 working as a personal trainer to support the 3 of them. The children attend a very diverse school, where they gain lots of exposure to various foods. Sometimes when the children come home, they ask if Bryan can make them a dish that Bryan has never made before. Unfortunately, due to the amount of time and preparations required to learn a new dish, Bryan doesn't have enough time to learn and discover new recipes for Bryan children while also working full-time to make ends meet.

Bryan's lack of free time makes it difficult for Bryan to provide the meals that his children ask for. Bryan believes that home cooked meals is critical to family bonding and maintaining a healthy lifestyle. This is one thing Bryan won't compromise on. As a single parent to 2 children, Bryan tries their best to be involved in their child's life to aid development. While Bryan may not have the ability to provide everything that other families provide for their children, the most Bryan can ask for is that his children are happy and not burdened by their circumstances. Bryan is interested in CookBook Pro since it reduces the preparation time for discovering and cooking new recipes. With CookBook Pro, Bryan wants to be able to meet the children's demands, expand their pallet, and try something new for himself.

Persona 4: Family Momma - Shawn D



Shaniqua is both a parent in a busy home, as well as a great cook. Her mother taught her how, and there are so many recipes that her and her family love that have been passed down from generation to generation. However, as overwhelming corporate influence continues to erode the democratic process, as well as the labor rights our forefathers gave their lives for, she is forced to work a full forty hours a week on top of her husband's respectable salary in order to make ends meet. As the inescapability of their plight sets in, her hopes and dreams formed in the ignorance of youth fade into melancholy, as wealthy elites stuff their homes and faces to unfathomable excess. Planning a week's worth of meals is the furthest thing from her mind, as she has just enough resolve to not pick up a bottle. Life in America is simply not what it used to be.

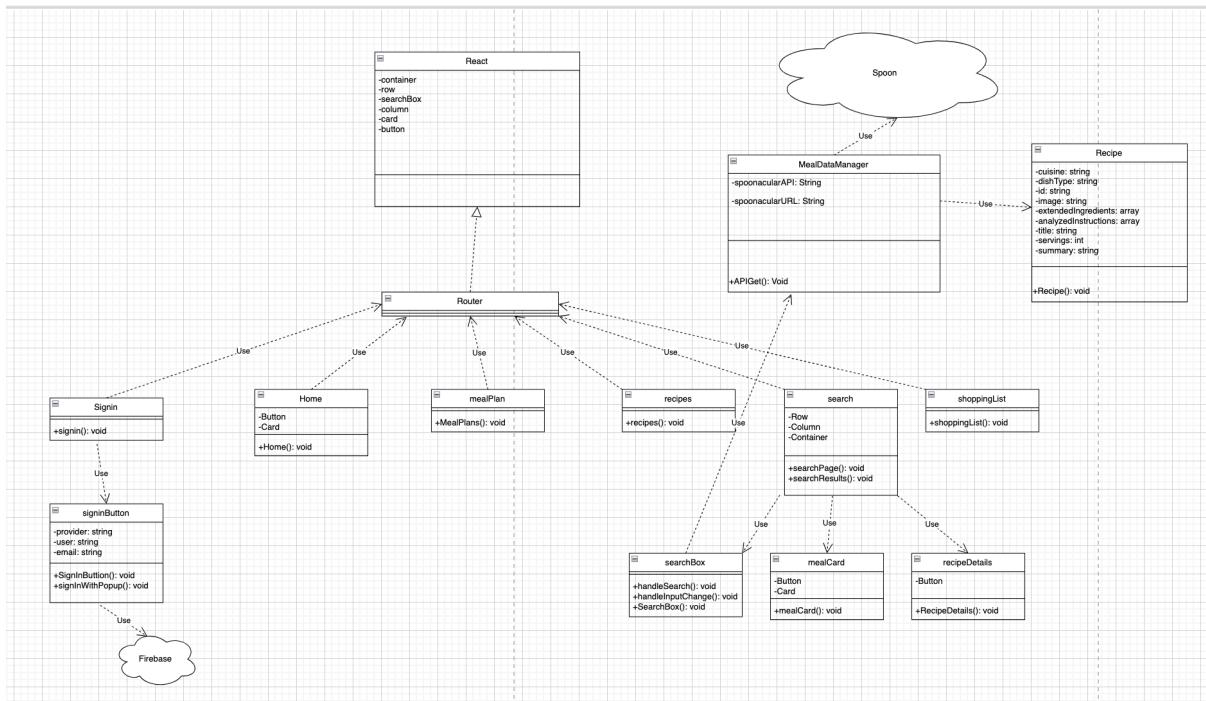
Luckily for her, with CookBook Pro she doesn't have to rebel against the bourgeoisie in order to remember the secret ingredient to Mom's favorite meatloaf. CookBook Pro knows all her favorite meals and everything about them! Ingredients, flavor profiles, and nutrition are all easily managed from the WebApp and sent right to her email at a moment's notice.

Persona 5: IT Specialist(Employee) - Oladapo Emmanuel Oladele

Emily is a IT specialist at CookBook Pro. She was born in Berlin, Germany and during her childhood a recession occurred all over europe, which caused prices of goods and services to skyrocket, making it difficult to get simple needs such as nutritious food. She went on to study at university where she volunteered at various communities, such as at a children's hospital and a food shelter as she had always been keen to help others. She has a degree in Computer Science with a minor in Chemistry. She has developed open source medical software such as an app for medical prescription discount, medical resource, activity tracker, and women's healthcare- related application.

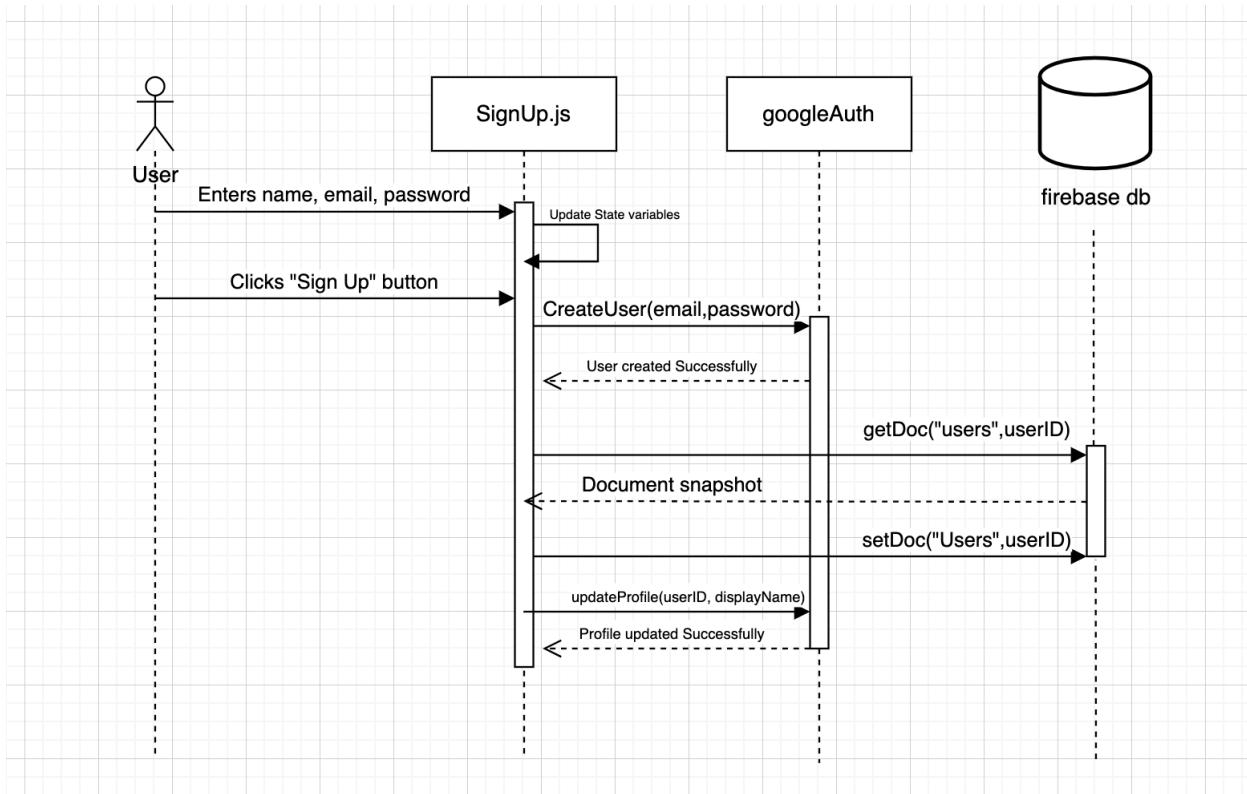
She works for CookBook pro because she wants to help alleviate the current state of food insecurity by allowing users to discover new dishes and implement an algorithm that allows users to compare prices between different companies or trusted independent sellers who are selling the specific product the user is looking for so that there is competitive pricing. She implemented a feature that allows users to rate, review and give feedback on the products they ordered, for product credibility and proof. Emily and her team maintain a web page as well as the global distributed package for user reliability.

UML Class Diagram

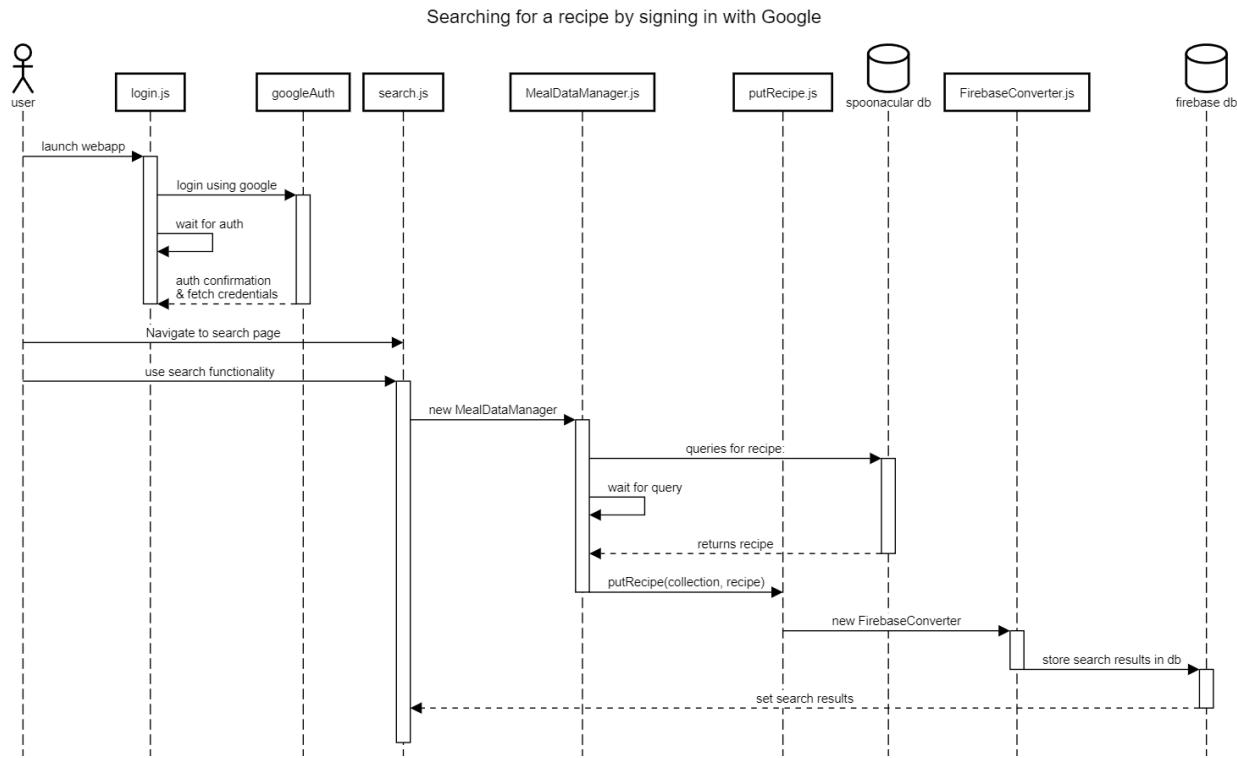


This is a uml diagram of all the classes and components we have completed so far. Our program uses react to implement the front end of the project. The header class, which we use a router to navigate around the webpage implements React and is used to display the header on every page of the website. From the router you can access the different pages. The pages use the router so they can be accessed. The signin page uses the signinButton and the signinButton uses firebase to authorize and sign in to the google account so progress and items can be saved. The home, mealPlan,recipes, and shoppingList pages are not complete yet, but they will also use components that we can explain once we finish coding. The search page uses three components. These components are the searchBox, mealCard, and recipeDetails. This page gets results from the Spoonacular api by accessing the mealdata manager. As seen above the searchBox uses the MealDataManager which uses the spoonacular api to get the search results. The MealDataManager class also uses the class Recipes so it can be used to generate meal data. Overall this uml diagram shows how we implement react to have our pages be able to handle various features such as signing in and searching meals. The diagram also shows how the api is being used and meal data is being generated.

UML Sequence Diagram



This is a uml sequence diagram of a user signing up with an email account so they can have their progress saved when using the application to search for meals. The "User" begins by providing their name, email, and password through a user interface represented by the SignUp page. This component updates its internal state variables to store the information entered by the user. Following this, when the user clicks the "Sign Up" button, it initiates a series of actions to facilitate user registration. It interacts with googleAuth to create a new user account using the provided email and password. If the user creation is successful, the process moves on to Firebase, a database service. It creates a new document with an initial value for the "userID" field. Next, the SignUp page utilizes googleAuth again to update the user's profile, specifically setting the display name. If all these steps are successful, then the user has successfully signed up for CookBook-pro and can continue to use this account through the login page when returning to use the application again.



This is a sequence diagram describing the process that occurs when a user searches for a recipe using google login. The user initiates the web app and chooses the Google sign-in feature on the login page. After clicking the Google sign-in button, a pop-up window seamlessly collects their credentials, managed by Firebase and Google. Waiting for authentication completion is crucial to address possible input errors. Once authenticated, users navigate to the search page, using the search bar to find recipes. Here, the backend takes charge, initializing a new 'MealDataManager' object tailored for user queries. The manager object queries the Spoonacular database for recipe results, patiently awaiting the database response. Upon receiving the database response, the manager utilizes a 'putRecipes' function call to store the data in the Firebase database. However, before storage, proper formatting is ensured by instantiating 'FirebaseConverter' within the 'putRecipes' call, converting the received formatting from Spoonacular's database to match Firebase's database format. Finally, users can view the search results on the search page, displaying recipes obtained from the query.

Project Progress:

Week 1:

Goal: Make major design decisions regarding scope and tooling

Tasks	Status	Points
One pull request from each member merged into main	Completed	1
One new release available to try	Completed	3
Personas	Completed	1
Product Vision	Completed	1
Updated Project Proposal	Completed	2
Updated ReadMe	Completed	1

Week 2:

Goal: Make significant foundational progress in order to let people branch out to individual tasks

Tasks	Status	Points
Create landing page	Not Started	3
Draft main webpage using Figma	Completed - Everyone	3
Parse how meal data comes from the API	Completed - Shawn	3
Figure out how to access user accounts from Firebase to get email	Completed - Brandon	1
Backend: User Authentication	Completed - Emmanuel	3
Figure out what we want to display in the detailed meal view	Completed - Everyone	1
Backend: Create a custom meal json object and ingredient object	Completed - Shawn	3
Render search results as meal cards	Completed - Jay	2
Add Working Search to current version of the application so that I can test storing its results	Completed - Shawn/Jay	3
Frontend: Get images loaded to the MealCard components	Completed - Jay	1
Frontend: Create static version of main page	Completed - Jay	2
Frontend: Create DetailedMealView component	Completed - Jay	2
Meta: Create UML Diagram of Release 2	Completed - Michael	3

Week 3:

Goal: Get as many features as possible done by November 29th

tasks	Status	Size
Store users and the meals tied to their account	Not Started	8
Load user's saved meals once they log in	Not Started	3
Query Firestore for meals before making an API call to Spoonacular	Partially completed - Jayming Liu	11
Google Cloud - Successfully connect to API endpoints	Not Started	5
Google Cloud - Finish establishing API endpoints from GC Server	Not Started	5
Explore Expanding Orders into Stored Meal Plans / Plan each week in the month from previously defined orders	Not Started	1
Custom Data - Create either a component or a page to enter Custom Recipes or Ingredients	Not Started	5
Custom Data - Write custom recipes & ingredients to user's Firestore entry	Not Started	3
Added infinite scrolling	Completed - Jayming Liu	3
Send Email for QuickOrder	Completed - Shawn Dutil	1
Sequence diagram - search for recipe using Google login w/ desc: 1 of 2	Completed - Michael	3
Implement Figma Style / Color Schemes	Completed - Brandon	3
Login Tweaks - Login button should display the currently logged in user's name	Completed - Emmanuel	1

Estimated Velocity	19 points per sprint
Calculated Velocity	9 points per sprint