PROJECT WORK DOCUMENT

INTRODUCTION

Extra Help to inspire and enable the nation to live healthy and physically active lives. We want to assist and encourage people to improve their physical and mental health. Extra Help is an app that allows customers to scan their daily food products to find healthier alternatives such as vegan, dairy-free, nut-free, halal, or meat-free offerings. The app will provide alternatives to everyone's favourite foods, such as chocolate, milk, chicken, beef, and ice cream. Extra Help will also provide recipes for various meals of the day that are in accordance with the customer's health needs.

BACKGROUND

Food Technology

Food technology is the application of food science to the safe selection, storage, processing, packaging, distribution, and consumption of food. Analytical chemistry, biotechnology, engineering, nutrition, quality control, and food safety management are some related fields.

Food scanners

Food scanners are one of the most recent technologies that provide information such as a well-balanced diet, nutrition, protein, vitamins, and calories. It guards against harmful diseases, allergies, and food poisoning. This would allow anyone to discover what's really on their plates, providing clear benefits not only to people looking to gain weight or eat healthier foods but also to people with dangerous allergies.

Food scanners have advanced from being handheld devices to now being implemented as apps on both IOS and Android. They are able to analyse the composition of food with just a scan. According to Bold Business (2017), Food scanners are being hailed as the latest solution to allergies, obesity and the world's food safety problem[1]. Food scanners are able to provide not only a breakdown of the exact nutrironal value in food products but also calorie counts and healthier food options.

Food Allergy Research and education (FARE) estimated that up to "15 million Americans have food allergies" (2022)[2] . While in the UK it is estimated that 21 million adults suffer from at least one allergy (Mintel, 2010)[3]. Through the use of Food Scanner apps users are able to use pre-saved information about the user's dietary needs to read the chemical make-up of foods, provide warnings, and steer users away from allergy-inducing edibles.

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[1] https://www.boldbusiness.com/nutrition/scanning-food-maintain-healthy-diet/#:~:text=Food%20scanners%20can%20read%20the,regarding%20the%20user's%20dietary%20needs.&text=The%20technology%20is%20also%20being,cause%20obesity%20and%20weight%20gain.

[2] https://www.foodallergy.org/resources/facts-and-statistics

[3] https://www.mintel.com/press-centre/beauty-and-personal-care/not-to-be-sneezed-at-almost-half-of-all-brits-are-allergy-sufferers

Key Competitors

- NHS Food Scanner App- Better health/Healthier families
- JollyGut
- Yuka
- IsVe?
- Spoonful
- CodeCheck
- Soosee
- Philips Healthcare

Applications

Food scanners can be applied to solve various issues such as

- Preventing allergic reactions through an accurate read of labels and nutrients
- Setting nutrition goals
- Meal decisions help in the future and recipe compatibility

Problem Overview

Staying on budget, finding food that accommodates everyone, accounting for dietary restrictions and food aversions, and planning a large enough variety of healthy meals to reduce cravings for less-healthy options are all challenges that families face when shopping for meals. These challenges are complex for a single person, but tracking the preferences and goals of multiple family members can be a significant challenge, potentially contributing to unhealthy diets in some families.

Solution

The Extra Help app solves these issues. A family-centric app with multiple facets for tracking food allergies and aversions, setting nutrition goals, and finding and providing recipe ideas – each with family overviews and specifics for family members, which may be used to help future meal decisions. The scanning feature is the app's main selling point. Users will be able to scan nutrition labels in stores to quickly receive feedback about the food, including information about allergies, goals, and recipe compatibility. Scanning the receipt is also an option for easier operation and budget considerations.

SPECIFICATIONS AND DESIGN

The ExtraHelp application required a mixture of functions and features which were technical and non-technical to operate effectively. Below is a table which specifies the project requirements done according to high to low priority.

Project Requirements;

Requirement	***Technical***	***Non-Technical***	***Function Description***	***Priority***	***Achieved***
Run a function for users to input their details	X		Lets users input their details	High	X
API key for requirements	X		Returns the url function for the 5 recipes based on the requirement selected	High	X
Define the requirements	X		Defining what the requirements are, which is veggie or	High	X
Try - except error messages	X		To test whether the API function is returning a call To ensure that the inputs meet the API call requirements At the end of the application returns. To ensure the input returned matches the parameters	High	X
Reliability of application		X	Creating unit tests to ensure the core functions are returning the desired information	High	X
Dictionary for API call results	X		After calling the API defining the results by its headers; Title, Ingredients, Instructions, Serving size Important to make it easily readable.	Medium	X

Add images to the results	X		To show the images	Low	–
Database to save user details	X		To create accounts so users could refer to recipes previously seen or used	Low	–

Design

The project was designed to return recipes that were either vegan or veggie and establish important features of the application. Below is a table that elaborate the users journey through the app.

Table 2.

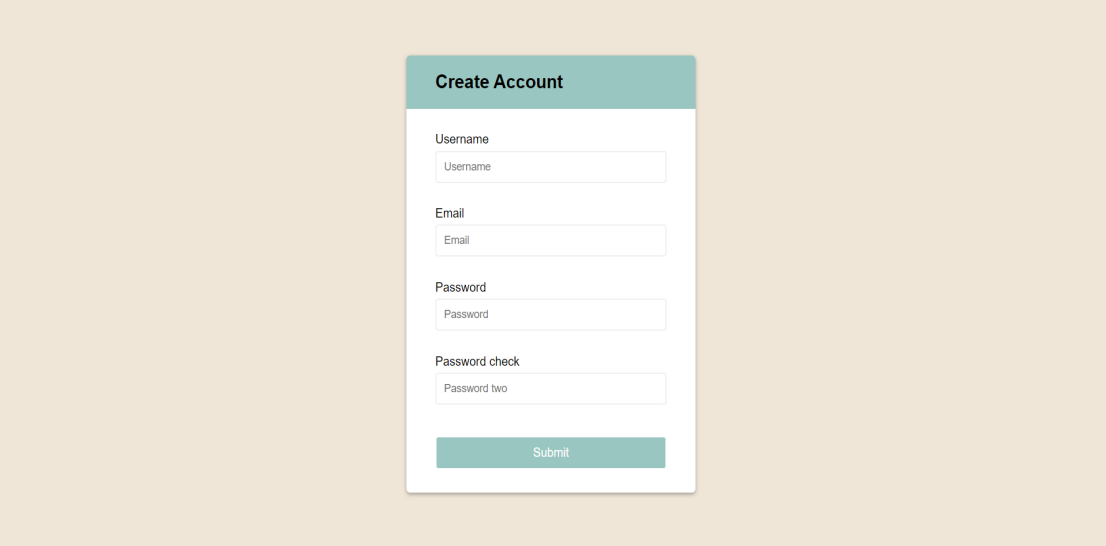
User	Description of User	Experience
1.	Vegan	-Webpage is loaded - Asked to input their name - Asked to input their dietary requirements - Only have access to part of the database that is relevant to their requirements (the vegan recipes) - Are provided 5 vegan recipes - At the end of the application they are asked if there is more they wish to see - If yes the webpage is

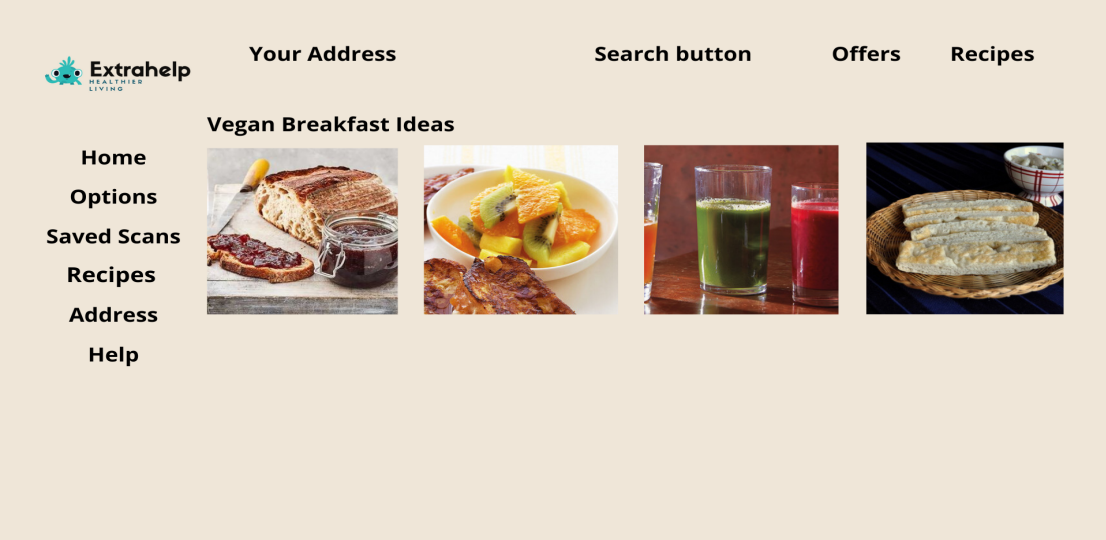
2.	Veggie	-Webpage is loaded - Asked to input their name - Asked to input their dietary requirements - Only have access to part of the database that is relevant to their requirements (the veggie recipes) - Are provided 5 veggie recipes - At the end of the application they are asked if there is more they wish to see - If yes the webpage is

The front-end design for Extra-help used HTML, CSS, Javascript and Canva for Logo design.

Front-end design process

Logo





IMPLEMENTATION AND EXECUTION

Once we settled on creating a meal planner we created a plan of action. We identified time as being a major constraint we would have to contend with, which prompted us to use agile project management principles. Meetings would be held once a week, normally on a Friday. During these meetings we would provide updates on our progress, brainstorm on any solutions to problems we had come across and motivate one another. We utilised slack and zoom to facilitate these meetings and to communicate to one another.

With almost alll high-priority features targets were completed by the deadline given across the team. After

reaching the first iteration of the application, the team reflected on where improvements could

be made by creating different user scenarios and testing the application based on the intent for

that user. The follow questions were raised during the process:

● Did the structure of the modules make sense?

● Are there repetitive pieces of code that could be refactored?

● Does the intent of the application work on certain edge cases?

The questions above led the team to further refactor the application to ensure that it's as efficient as possible. In the second iteration of the application, we moved into the testing phase where the team worked primarily on edge-case scenarios that could cause errors to be raised and how those could be dealt with. Our unit testing was still underway, we faced issues running our unit testing and came together as a team to try to overcome these issues. However, due to the time constraints and our understanding of unit testing we were unable to correct our testing of the inputs. This is a disappointment however, it is also a learning opportunity for us and has shown us where we must focus our attention on, in terms of our learning.

Table 3.

Team Member	**Role**
Shiann	Development, Quality Assurance and Project Manager
Faith	Development Manager, Front-End
Igran	Product Manager, Testing Lead

TESTING AND EVALUATION

Unit testing was used to identify areas where there is potential for error. When writing our unit tests we wanted to make sure we wrote tests for each function, so we could test all aspects of our code. The first few unit tests test the methods in our code such as capitalise() and lower(). These are relatively simple unit tests and test that these methods are functioning the way they should be. The next thing we did was put ourselves in place of the user and think about the different ways a user might interact with our code. Even though we created inputs that only had a few possible options we knew that users might try to input something else, or they might misspell a word. In our code we wrote error messages to combat this however, we still wanted to test inputs in our unit testing. This is when

we ran into some difficulty, testing inputs requires you to use mock/patch. This is more difficult than the previous unit testing we had to write. After hours of research we were able to test our inputs by importing mock.

Another way we tested our code was by running the code and imputing different things each time just to see how the programme would respond to the different inputs and whether or not the programme was responding the way we wanted it to. And from this we could gather a lot of information about what needed fixing in our code and what was running optimally.

Limitations

Our biggest limitation was obviously time. There were a lot of aspects of our code that we wanted to explore further but couldn't due to time constraints. We also had only 3 members in our team so we all had a bigger workload than expected so we had to prioritise hitting the project requirements. We wanted to create a database to store user information and also create a login page where the users could set up usernames and passwords but sadly we weren't able to get that far.

There were a few limitations to our code for inputs; we didn't write any code to prevent the user from inputting special characters or even numbers in their name. We also did not write a minimum or maximum number of characters that could be included in the name. When prompting the user to choose between vegan and veggie it would've been better if the user could just choose 1 or 2. This would have made the input easier for the user and limited the probability of error such as spelling mistakes.

CONCLUSION

The aim this team had was to meet the minimum requirements for this project, whilst creating a smooth running code that demonstrated the skills learnt from this Nanodegree specialisation. This project has been completed with the high priority items being successfully implemented and the code created hitting the minimum requirements as well as meeting some of the higher requirements for this project.

The challenges we faced as a team included a lack of time available to us, and an area of weakness the team faced was a lack of confidence with API’s implementation, which is the most important requirement for this project. However, we used the technology available, such as slack and zoom, to overcome these challenges. Unfortunately a fundamental part of this learning journey is sometimes not being able to solve certain problems. This has been the case with the testing of the code. It has provided us with a clear indication of where we must focus our learning onto in the future as testing is fundamental in programming.