

The Negative Health Complication's Associated With A Poor Transition To A Plant-based Diet



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Signed: Cian Dadgar

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Date: 30/04/2021

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Chapter 1

Introduction

1.1 Abstract

As the world becomes increasingly more conscious of their carbon food print, people have begun to understand the affects and carbon emissions that come with the production of animal produce. Animal agriculture accounts for 18 percent of all greenhouse gas emissions. (Bourassa, 2021) This has resulted in people making pro active changes in their diet to reduce their meat consumption if not completely eradicate from their diet.

In this document, I will be exploring the the issues the surround the relaying of information for plant-Based dieting.I will be describing my choices of technology and design decisions and also my process of researching and building of my digital artifact.

*“Nothing will benefit human health and increase the chances for survival of life on Earth as much as the evolution to a vegetarian diet”. — **Albert Einstein***

(Jones, 2015)

1.2 The Problem

The idea of a plant-based diet can seem extremely enticing for people to adopt into their lives. A varity of documentaries and educational programs have glorified glorified the plant-based lifestyle by showing them the health benefits. People have

begun to transition to a plant-based diet without doing research which can result in serious health complications. As you transition to a plant-based diet, making sure you get the proper nutrients and vitamins from your diet is vitally important. There are various nutrients and vitamins that humanity has been getting from the consumption of animal products throughout their life. As they transition to a plant-based diet, they are not getting the vital nutrients and vitamins in their diet as they are not substituting the right foods. Changing your diet is a huge change to your body and if the necessary research is not conducted paired with the inappropriate practices it will lead to serious health complications.

Although the information is available on what is necessary to practice a safe and healthy plant-based diet, there are issues with the way that the information is relayed to people. The information being relayed to users does not give a comprehensive guide on how to transition safely and healthily. The information is scattered across multiple websites and forums which makes the task of researching incredibly tedious. The users are supersaturated with information that is not needed to help them transition. The information includes the use of complicated terminologies and figures which confuses users when conducting their research. These issues disincentivise users to conduct their research as they feel overwhelmed with information or they do not understand it. This is a large problem in the plant-based diet community as people do not see immediate health complication which results in bad practices for their diet for a prolonged period

1.3 Project Aims and Objectives

With this project, I aim to help create a solution to “The negative health complication associated with a poor transition to a plant-based diet”. I truly believe I can create a solution that is effective and aids plant-based dieters to a healthier and more sustainable life.

This project aims to implement technology using a mobile device to aid people beginning their transition to a plant-based diet. I aim to gather all the necessary information that a person transitioning to a plant-based diet needs to know and sim-

plifying the terminology and statistics but summarising the information into simpler terms for the user to understand.

Another aim is to make the information fun for users to learn to make the task of researching not seem like a chore. To reach this goal I have decided to incorporate a social media aspect to the application to bring an alternative way of learning and to retain the attention of users. This will help prevent the monotony that comes with educational research.

I will develop a mobile application is directly aimed at people trying to transition to a plant-based diet. There will be several different elements through the application to help the user get all the necessary information that they should know before and during their transition. These elements including:

- A homepage allows users to interact with other plant-based users using posts likes and comments.
- A restaurant locator which will take your current location and procure a list of restaurants that have adequate plant-based options.
- An information section to compile all the information users need to know when transitioning.
- A recipe section that focusing on reinventing popular meat dishes and substituting animal products with alternative plant-based proteins.
- And a personal profile that will allow users to display their posts and create a personal blog to help other users with recipes, tips, and tricks.

As I plan to make the information easy to read and comprehend, I will need to create an aesthetically pleasing and easily accessible user interface. Using design techniques, I will make the information as least text-heavy as possible using graphic design and separating the information into different sections. To maximise the benefits of the application I will need to use a working database that will store information such as users, posts, restaurant locations and profiles.

1.4 Outcomes

The outcome of this project will a fully functioning informational social media application that will help people aspiring a change to a plant-based diet by giving them

all the necessary information in one place. The report will indicate my research and design process, my reasoning's as I combat the problems and issues surrounding "The negative health complication associated with a poor transition to a plant-based diet". I believe I will create an important application that is of high quality and extends past the length of this project in turn helping and changing lives.

1.5 Application Description

The informative social media application helping you transition to a plant-based diet.

Changing your diet can affect you in a multitude of ways. It is important to make sure you know all the information on what is needed to transition to a plant-based diet. If the necessary information is not known, this can lead to long term health issues.

The application will aid people that are thinking about reducing their animal product consumption or transition to a plant-based diet. This application has gathered all the necessary information that a person transitioning to a plant-based diet needs to know and simplifies the terminology and statistics by summarising the information into simpler terms for the user to understand.

This application relays the information in an aesthetic and user-friendly way that all users can understand. This application focuses on beginners by giving the user popular meat dish recipes and substituting alternative sources of protein to ease animal products out of their diet gradually. The application also combats the issue of finding adequate plant-based options in your area by locating options nearby by that are recommended by plant-based eaters.

Having people to support you on your journey is incredibly important and can help make your transition a smoother and easier process. Planta connects plant-based eater across the globe by creating allowing users to follow, like and share pictures and comments on recipes, tips & tricks, and other valuable information to help other plant-based eaters.

Chapter 2

Research

2.1 Introduction

In this chapter I will discuss, explore and dissect my research question in its various components and the problems which are presents. I will explore its functional and non-functional requirements to give insight into how the applications combats offers a solution to the posing issues. I will explore a variety of literature and pre-exisitng application to help recognise the areas of importance that I need to implement into my study and digital artifact.

2.2 Research Question

“The negative health complication associated with a poor transition to a plant-based diet.”

Being born in the digital age we have been surrounded by technology our whole lives. Society has realised the potential of utilising technology in our lives to assist us in task to make to reduce the effort exerted. Through this realisation, technology has continued to grow through the years and has been incorporated into all aspects of our lives. From our work life to our education, to even our free time, we are surrounded by technology.

I consider myself quite a tech-savvy person and have been interested in technology my whole life. It is something I am passionate about and can see a future in. I have had a special interest in mobile application development and paring this with

my passion for health and helping others make healthier choices it was an obvious decision for me to combine the two and make and mobile application.

Conducting research can be long and arduous even if the topic is something that you feel passionate about. This can result in people not wanting to research or loss of interest. I felt as if there was a need to reform the way of informing people to adapt it to suit the interests of our generation. Our generations spend nearly as much time on social media as we do sleep, this sparked the idea of incorporating the element of social media to reinvent educating people by camouflaging the research process through the use of social media.

2.3 Problems Associated With the Research Question

2.3.1 Lack of Information

The lack of information made my transition incredibly hard to understand what I need to do to ensure a safe transition. I found little to no comprehensive guides on how to transition safely and smoothly. I found there was not enough emphasis put on informing what nutrients and vitamins users should be careful of now that they are on a plant-based diet. This is because the main source of vitamins and nutrients are derived from the consumption of animal products. This problem has been represented in many people that are now deficient as it was not maintained throughout their transition. I also felt there is not enough emphasis put on the new food groups that the individuals should know now that they are on a plant-based diet. Knowing these food groups can help you in your transition by allowing you to get the right amount of the specific food group in each meal. Knowing these food groups would allow you to know where to get your sources of vitamins and other nutrients such a protein.

2.3.2 Complicated information

What information I found used complicated terminology and included a lot of information I did not need. I needed a comprehensive summary of all the information in one place. When researching the amount of the individual nutrients and vitamins I needed to maintain a healthy diet the information given was always in the complicated figure to understand that confused me. In my application, I decided to give a list of the foods that have the highest amount of each nutrient and vitamin and daily recommended amounts to achieve the amount needed.

2.3.3 Scattered Information

Any information I found was scattered across multiple websites and made the task of researching incredibly tedious. When conducting my research, I found no application that ticked all the boxes on the necessary things and information on the transition to a plant-based diet. The internet did not have the right information and if it did it was scattered and hard to find. Planta combats this by giving all the information in one place.

2.4 Requirements

2.4.1 Functional Requirements

Introduction

The functional requirement is what the application intends to do and achieve. In this part of the essay, I will outline the application's key features and their purpose for being incorporated. Our main navigation is compiled of 5 pages. The home page where the timeline is posted, the restaurant locator to locate plant-based options near you, the information section where all the simplified information is displayed a recipe section and a profile section.

Home Page

The home page mimics our beloved social media application by adding a timeline where users can create a post using a description, hashtags, and tags. They can like, save, and comments on captioned images. And check their notifications from their interactions with other users. This section is to allow users to share the information recipes and other tips and tricks that helped them along their journey. By connects, the users bring a fun element into the application and help build a collaborative source of information that could help people across the world.

Restaurant Locator

Secondly, we have our map function. I found that Google searches often was not the right result as many restaurants listed plant-based options but only had one or two when I looked at the menu. This map function takes your current location and procured a list of restaurants that have adequate plant-based options that are recommended by plant-based eaters for plant-based eaters. The map is fully moveable with zooming in and out features. When the marker is clicked it reveals the name of the establishment that has adequate plant-based options.

Information Section

The information section is compiled of 4 sections of simplified information. For this section, I wanted to make the information as least text-heavy as I could to not disincentive people to read. To combat this, I divide the information into different sections that are clickable using the card view feature. The card view feature is commonly used in modern-day application to create an aesthetic clickable button. I have the different sections and subsections divided into different areas and have related pictures to make the application more aesthetic. Firstly, we have the assessment section where you are to assess whether the plant-based diet is the right option for you based on your current health, age, weight, and reasoning for transitioning.

Secondly, we have food groups this shows the user the different food groups that they must know of now that their diet has changed. This gives a list of the types

of foods in the groups and helps the user using rough guides on how much of each group to use when creating a meal.

Next is nutrients. This is arguably the most important section. As you transition to a plant-based diet, you cannot get some of the nutrients that are derived from the consumption of animal products. This gives a list of the nutrients you need to monitor and a list of foods that are high in the nutrient. There is a daily recommended amount of each of the user decided to take a supplement instead of getting the nutrients naturally from food.

Lastly is tips and tricks. This is a list of the best tips and tricks that every plant base eater should know at the beginning of their journey to ensure a smooth and safe transition.

Plant-Based Recipes

Our next section is our recipe section. For this section, I mimic the card view feature to allow a clickable button with a picture of the recipe along with a title. This has a scrollable feature so the users can look through all the recipes.

This section has a list of different breakfast lunch and dinner option for the users to choose from. These recipes are focused on beginners. The recipes are tweaking popular meat dishes and substituting different forms of plant-based proteins to guide the users on how to make their favourite meat dishes plant-based

Personal Profile

Lastly, we have our profile section. This allows users to engage with each other user profiles. The profile displays your post and followers and saved pictures. The search function allows you to search for users and follow them to display on your timeline. This feature is paired with the home page. This page offers users the option to create a space where they can create and share their knowledge. There is a multitude of ways in which users can use this page such as a blog for recipes or to share information.

2.4.2 Non-Functional Requirements

Introduction

The non-functional requirement will consist of all attributes that are needed to assist the functional requirements to work.

Scalability

If my application were to be release the market scalability would be a key factor in the running of the application. As the application requires the need of a database to run, the scalability of this database will be vital to aid the traffic coming in and out of the application. The database stores and multitude of the data created on the application and without this the application will be non-functional.

Screen Adaptation

In current times there is a multitude of devices with different makes and screen sizes. As my initial goal is to have the furthest reach of the number of people able to use the application screen adaptation will play a significant part in that. My application should adapt to the different resolutions and screen sizes to display the application in a functional and aesthetic way.

Network Coverage

Network coverage plays a significant part in the functionality of my application. As previously mentioned, most of my data is stored in the database. To retrieve this data my application would need to be connected to either a Wi-Fi network or through cellular data.

Useability

This highlight one of the issues on my original research question. One of my main goals is to simplify and gather all the information in one place where users can understand. Using a simple and clear design with instructions will ensure that all

types of users regardless of their technical capabilities can navigate and use my application with ease.

Performance

To ensure that users have a pleasurable and enjoyable experience with my application the performance is vitally important. If there are delays or mishaps throughout the application this will disincentivise the users from returning to the application as they will get frustrated and will believe the application is not running properly. My application should take no longer than 3 seconds to perform any task or loading experience. Having this non-functionality requirement will solidify that my application is of the highest quality.

2.5 Literature Review and Project Background

2.5.1 Introduction

This chapter contains a series of literature review regarding Plant-based dieting and the effecting of integrating social media into learning. I will also explore a range of pre-exisitng mobile applications in the context of Plant-based dieting and explain how they do not meet the needs of the users. In doing this will give me a better idea on feature to include in my application

2.5.2 Literature Reviews

Plant-Based Dieting

Our diet affects the way we can do specific tasks throughout our day. Food is our fuel and without it, we would not be able to complete our day-to-day activities. We do not realise how important our diet is and can be often taken for granted until we fall ill, or health complication comes because of a poor diet. This is the same for plant-based dieting. A noticeable trend has emerged as popularity in a plant-based diet has risen over the last decade. As I mentioned people neglect their diet and are not aware of the severity of the health complication that can come if your diet is not

monitored. As your transition to a plant-based diet, there is not enough emphasis put on informing and understanding which nutrients and vitamins the dieter will not be receiving as much of due to most of the nutrient is derived from the consumption of animal products. In this literature review, I will discuss my findings from various articles backing the posing issue and will explore the underlying health conditions and nutrients that will be causing the health complications.

There is a myriad of health benefits that can decrease or even cure health conditions such as obesity, diabetes, heart disease, high blood pressure and even mortality. These can sometimes overshadow the potential health complications that come with a plant-based diet if not monitored. The first concern is protein. (Tuso, 2013)

Proteins are made up of amino acids which cannot be made by the body. The main source of proteins is derived from the consumption of animal products. We need protein to give us the essential amino acids to help rebuild muscle tissue. Depending on how active you are you need to maintain a level of protein to avoid the risk of becoming protein deficient and to help the body repair muscle tissues. There is a range of plant-based food that can give the required amounts of essential amino acids to help maintain the required amount. This includes quinoa and various sources of legumes and soy products. Combinations of specific products such as brown rice and beans, and hummus and whole-wheat pitas give a well-balanced source of essential amino acids which prevent deficiencies and health conditions. (Tuso, 2013)

Similarly, to protein, most of the iron we receive in our diet was through the consumption of animal products. The iron in plants has a lower bioavailability than the iron in meat. This means that plant-based eater must consume more to ensure they get the right amount of iron in their diet. Plant-based options that are rich in the nutrient include kidney, black and soybeans, and a range of other products such as spinach, raisins, cabbage, and tomatoes. (Tuso, 2013)

Vitamin B-12 is a severe problem if the plant-based dieter is deficient. Vitamin B-12 is necessary for blood formation and cell division. If a deficiency is present it can lead to macrocytic anaemia and irreversible nerve damage. Vitamin B-12 is not produced by plants or animals but is created by bacteria that can be derived from the

consumption of animal products. Diets such as veganism where no animal products are consumed can become extremely vulnerable to deficiency in vitamin B-12. It is necessary for individuals to take supplements or find foods that are fortified with vitamin B-12. (Tuso, 2013)

People on a plant-based diet that do not consume products with high calcium are at a risk for impaired bone mineralization and fractures. To maintain bone health an adequate level of calcium must be absorbed. Foods that are rich in the nutrient are tofu, mustard, and kale. Spinach and other plant-based options may contain an adequate amount of calcium but are bound to oxalate which means they will be poorly absorbed. (Tuso, 2013)

Vitamin D deficiency is common among all humans, but as there is a pairing between calcium amounts and vitamin D as there are both needed for bone health. Plant-based products such as soy milk and cereals can be fortified to provide the necessary amount of vitamin D. (Tuso, 2013)

The two main fatty acids that are necessary for our diet are alpha-linolenic acid (Omega-3) and linoleic acid (Omega 6). Fatty acids are necessary for a diet for good health as they cannot be synthesised by our bodies. Without the consumption of these fatty acids, it can lead to skin, hair, and nail abnormalities. The most common fatty acid that plant-based eater or likely to be deficient in is Omega-3 which is called n-3 fats. The plant-based option of n-3 fats is low in the amount needed. Reliable sources of omega -3 include ground flax seeds, flax oil, walnuts, and canola oil. With the consumption of n-3 acids, there are reduced incidents of heart disease and stroke. (Tuso, 2013)

Similarly, to Vitamin b-12, zinc is harder to absorb into the diet as plant-based foods are high in phytic acid which inhibits the body to absorb zinc. Zinc is needed for immune health to fight off bacteria's and viruses. Reliable sources of zinc for a plant-based diet include whole grains, tofu and tempeh. (Forrest, 2020)

To make sure you are getting the right amounts of nutrients, plant-based eaters must conduct research to educate themselves on what is needed and what are reliable sources to include in their diet. This is essential to prevent underlying health

conditions that can be developed over the duration of their plant-based diet journey. Our diet affects our mental and physical abilities along with health and it is necessary to create and balanced diet.

Social Media Effects and Alternative Ways of Learning

When beginning my planning on how I would be able to make researching more intuitive and user friendly, I began to look at the technologies that we enjoy and use daily. This is where I came up with the idea to add a social media aspect to the project. I began to research the effects that social media and how it can be incorporated into alternative ways of learning. Researching the effects social media has on our brains further solidified the concept of incorporating social media into the application. A study posted by Harvard University states that using social media similarly lights up a specific part of the brain when addictive substances are taken. This phenomenon is largely attributed to the dopamine-inducing social environments that we are exposed to when using social media. (Hillard, 2019)

Having this addiction makes the user want more and to keep returning to the platform. This was my aim to help grow and keep informing the users. According to a recent study on using social media to engage and develop the online learner in self-determined learning, teacher and professors have realised the benefits and are incorporating social media into their classes to engage and support the development of their education. (Blaschke, 2014)

An article posted by the staff of the University of Arizona states that the use of social media in the classroom promotes self-directed learning. When it is utilized in a classroom setting, the social media skills they use can be guided and refine to increase critical awareness and produce a better learning outcome. Social media also promotes collaborative learning by allows users to connect and share information, tips, and ideas. The promotes deeper engagement and better performance outcomes from the student rather than passively learning by speaking to. If students can interact with their peers and course materials on social media platforms, they are more likely to put more effort into both an online presence and developing their

education. (Using Social Media for Learning | UAGC | University of Arizona Global Campus, 2020)

It is known the traditional forms of teaching i.e., passive learning leads to a decrease in the attention of individuals. Using the internet and social media is proven to help retain the attention span of individuals and they are more likely to devote their time and put extra efforts towards their education. Using social media as an alternate learning method has shown links to improving literacy, communication and reading skills. I think the addition of a social media aspect in my application would increase the retention of knowledge and help the users engage more in the information and each other. (Willbold, 2019)

Rising Popularity in Plant-Based Diets

Rising popularity in plant-based dieting. Society has begun to realise the benefits of plant-based dieting every much so over the past decade where we have seen surges in popularity in people transitioning to a plant-based diet. A pinnacle turning point for plant-based dieting was in 2020 as covid-19 stormed the globe. As lockdown came people began to become more health-conscious. We saw more documentaries and people sparking interests as the benefits of plant-based dieting emerged. By the summer of 2020 increased by 243% with 14% of consumers adding meat-free options to their shopping list. Companies saw this interest and launched a range of plant-based options for the public as they saw the rise in interest and results of a drop in sales. Companies such as McDonald's, Subway, KFC and ben and jerries all launched their plant-based menus focusing on vegan produce to create options for their customers. Before this, we saw little to multinational companies taking a lead to create more plant-based options. Analysts predict the plant-based food market to further grow by 11.9% by 2027 and have been valued at 74.2 billion dollars. (Solway, 2021)

This has not been the only causation in people adopting a plant-based diet. For decades there has been a well-debated topic on animal welfare. There is an estimated amount of 8 billion animals slaughtered every year. The increase in companies making products to substitute meat whilst retaining most of the taste has been a

major contributor to people taking the stance against animal cruelty and reducing their meat intake by up to 48%. (Solway, 2021)

A large contributor is the sustainability aspect of a plant-based diet. 37% of plant-based dieters say the reason they have switched to a plant-based diet is to become more sustainable. The production of animal products contributes to 60% of agriculture greenhouse gasses which is the direct causation of the opening of our ozone layer and increasing the earth temperature leading to rising sea levels. (Petter, 2020) By emitting red meats such as mince that everyone that would consume one portion is saving 1321 litres of water equal to 7 bathtubs that are used to procure the mince.

Experts state that the best way to reduce the impact on the earth is to practice a vegan diet. In doing this you will reduce your carbon footprint by 73%. If this mentality was adopted around the world farmland would have the capability to reduce by 75% which will significantly drop greenhouse gas emissions, free up the last land to agriculture and provide space for wildlife to reduce mass wildlife extinction. (Petter, 2020). If there is a market for these products large companies will continue to disregard the damage, they are creating. By individuals making this transition they are opening the market for companies to transition to reduce the carbon footprint and reverse the damages caused to the earth. (Solway, 2021)

2.6 Existing Application's Associated With a Plant-Based Diet

2.6.1 Vegan Pocket

A massive problem in the vegan community is figuring out whether a product is vegan or not. As veganism has gained popularity over the last decade, companies have not yet begun to label packaging if their products are vegan. Vegan Pocket is an application that is aimed to help distinguish whether a product is vegan to help people stick to their vegan diet. It operates through scanning the bar code of the product and through community approval states if the product is vegan. It

offers a recipe section and a vegan diet section. In this section, you can join a vegan community, scan any product receive meal plans and have no advertisements.

Disadvantages of the application are that the initial scanning does not work. There are only 5 recipes with an awkward user interfaces and to view the vegan diet section there are in-app purchases of \$20 for unlimited access, \$3 for the meal plans weekly and \$10 for monthly meal plans. These changes make the application extremely inaccessible for people trying to transition to a plant-based diet as the subscription rate is extortionate for a simple service. The concept is a great idea, and I would hope to incorporate it into my application in the future.

2.6.2 Deliciously Ella Recipes

Deliciously Ella is the most popular application for plant-based recipes on the app store now. It has over 600 plant-based recipes, over 200 yoga, meditation and exercise videos, wellness plans as well as meal plans and a shopping list feature.

This application is well equipped with all the needs of a person who is on a plant-based diet. Where this application downfalls are that it has an 11-euro subscription rate. This makes the application inaccessible for users trying to transition to a plant-based recipe. This application also does not focus on helping beginners' transition by making the meals they used to eat plant-based. Over 600 recipes can also cause clutter that may end up confusing the users. This may also share the confusion with the myriad of additional features that comes in the application.

2.6.3 Daily Dozen

Daily dozen gives you a list of the healthiest foods and how many servings you should have each day. This is a great application to see what nutrients you need to have a sustainable and healthy diet. This application is Dr Greger a nationalist and author which makes his knowledge and research accessible to all users. This application is free to use and provides external links to further information.

A downfall for this application is that it does not cater for specific types of diets.

As your diets are different your daily amounts and sources of nutrients and vitamins needed may vary on different diets.

2.6.4 Simple Vegan

Simple vegan is an application that helps users transition to a vegan diet. This application gives a beginner's guide to help you through the process of transition to a vegan diet. They give over 500 recipes, make shopping lists and meal recommendations. This application is well designed and has the right guides to help people transition to a vegan diet.

The downfalls of this application are that it has a 31-euro subscription rate to unlock all these features. This again makes the application extremely inaccessible for users as they cannot access any of the features without the subscription rate. The application also only focuses on a transition to a vegan diet, so all the recipes, plans and information are specific to this diet. This makes the application, not as user friendly that are on diverse types of diets.

2.6.5 HappyCow

HappyCow is an application to help locate vegan food in your area. It has been in operation since 1999 and has options worldwide and has a wide fan base of users. This application offers community engagement by allowing users to submit the results for the plant base option in your area. This application is well equipped with all the necessary functions to help you find plant-based option wherever you are in the world. The community engagement allows the users to constantly update the places that cater for vegans. A downfall of the application is that it has a \$4 download fee which makes the application inaccessible to users.

2.7 Conclusion

Discussing how information is construction and relayed highlights the issues associated with my research question. Through my study and building of my digital arti-

fact, I will create a solution by collecting, simplifying and relaying the information in a way that is interactive and easy to understand. From this discussion, we know that there is a direct correlation between the functional and non-functional requirements. Without one, the other cannot operate which will hinder the application. I believe it is vitally important to choose the correct functional and non-functional requirements to suit your application and your target audience. These requirements will ensure my application performs at the highest capacity and remain effective through the user's experience. Conducting research on pre-existing studies and applications has highlight key areas to work on for my study and the building of my digital artifact. Seeing the rise in popularity of plant-based diets paired with the risk of health complications can pose a real issue as popularity continues to increase. We see that pre-existing application are not equipped with the right functionality to facilitate solutions for these problems. This proves that there is a need for my application.

Chapter 3

Technology and Design

3.1 Technology

3.2 Introduction

In this chapter we will be discussing the technology and design decisions that I made throughout my process of this project. I will be discussing the technology I used and my reasoning behind my choice. In addition I will be discussing where I got my inspiration for my design ideas with visual examples to show the finished design of my application.

3.2.1 Resources for Learning

Udemy

“Udemy, Inc. is an American massive open online course (MOOC) provider aimed at professional adults and students” (Udemy - Wikipedia, 2021). Having no previous experience in android developments or in-app development, I have decided to take an online course in learning how to code in JavaScript and android studio. I have enrolled in a full-time course that is free with over 26 hours of informational learning. This is a beginners course that will give me the necessary information and the push to start developing my application. The reasoning behind choosing android as my platform is because over 85% of devices sold today are running an android platform. There are two types of coding that work for android development JavaScript and

Kolten. I chose JavaScript because I felt it would be more useful to use to learn the language for the future.

Youtube

By definition given to us “YouTube is an online video platform owned by Google. It is the second most-visited website in the world. In total, users watch more than one billion hours of YouTube videos per day, and hundreds of hours of video content are uploaded to YouTube servers every minute.” (YouTube - Wikipedia, 2021). YouTube offers some of the best educational tutorials on the internet. By allowing users to upload and share their knowledge, they receive a payment from YouTube in return. This has resulted in a myriad of education tutorials for android application development.

Why I chose YouTube: When conducting my planning and research on the features I wished my application to have, YouTube seemed to have the answers to all my problems. I found an issue with following tutorials from previous years as the software is constantly updating. This means that different methods and layout of the software has changed rapidly through the years. As YouTube tutorials are constantly being posted, I was able to find relevant tutorials that were in recent dates. YouTube offered a free way to learn and code along with some of the best coders sharing their tips and tricks on how to best utilise the software.

3.2.2 Programs and Services

Firebase

By definition given to us “Firebase is a platform developed by Google for creating mobile and web applications. It was originally an independent company founded in 2011 In 2014, Google acquired the platform, and it is now their flagship offering for app development. (Firebase - Wikipedia, 2021). Firebase makes the process of adding a multitude of feature to your project by providing the necessary tools to help you build and grow you mobile/web application. Some of the features include analytics, authentication, databases, configuration, file storage, push messaging. Firebase

operates on a cloud service which means their products have backend components that allow you to back up your data and use their services which are monitored by google at all times. Through this process, it creates the ability to cut out the middleman i.e., front end servers that you might have needed to host your application. (Stevenson, 2018)

Why I chose Firebase: The reason I chose Firebase was because of its widespread use across the internet. When researching what databases are the best suit for mobile and app development, all the answers pointed towards Firebase. It offers a quick and easy service that is free of charge unless scalability is needed. In my case as I was only building my application for small scale use, these free features were perfect. When deciding which database I would use, I also wanted to take into consideration my level of skill in coding and the use of databases. I would be relying on tutorials and online reading to learn what features and how to implement them into my application. Firebase having the popularity and mass scale of users resulted in many resources for learning for features and implementing them into my application.

Android Studio

By definition given to us “Android Studio is the official integrated development environment (IDE) for Google’s Android operating system, built on JetBrains’ IntelliJ IDEA software and designed specifically for Android development.” (Android Studio - Wikipedia, 2021) Android studio was realised for public use in 2014. Since its release, it has paved the way for mobile application development. The software is free to download and has a multitude of features such as a Gradle-based build system, an emulator, code templates, and GitHub integration. (What is Android Studio? - Definition from WhatIs.com, 2018). The possibilities are endless with integrating external libraries to help you create the application you need.

Why I chose android studio: The first reason I chose android studio was that I decided to code my application for android devices instead of iOS. The reasoning behind choosing android as my platform is that over 85% of devices sold today are running an android platform. As time was scarce, I had to choose one platform and

with this statistic, I felt I would have the greatest reach of the number of people that I could help. Another reason that I chose android studio was for the amount of resources available. As previously mentioned, I was starting my journey with no previous knowledge of coding an application or of the coding in the language Java. With this, I felt I needed a plethora of resources to choose from to ensure that I could be guided along if I came into any complications. As my database was necessary to my project, I had to take that into consideration when choosing my platform for coding. Android studio implements the use of Firebase with ease as it is already has an integrated help function. This resource is entirely free and solidified my reasoning for choosing the software as I felt it had all the necessary capabilities to help me create my application.

Canva

By definition given to us “Canva is a graphic design platform, used to create social media graphics, presentations, posters, documents and other visual content. The app includes templates for users to use. The platform is free to use and offers paid subscriptions like Canva Pro and Canva for Enterprise for additional functionality. Users can also pay for physical products to be printed and shipped”. (Canva - Wikipedia, 2021) Creating an interactive and aesthetic UI is very important for an application. Having a background in graphic design and photo editing, I had planned to create all my graphics for the application as I had the necessary software such as Photoshop and Procreate. I have been introduced to the potential of Canva this year and have not looked back since.

Why I chose Canva: The main reason I chose to use Canva for my graphics was because of how easy the software makes the process of creating graphics. As I have a background in graphic design, I know the lengthy procedure of create graphics. For my application I needed to create a lot of graphics to create an aesthetic that tied my application together. Knowing how time consuming creating all these graphics was, I decided to turn to Canva. Canva had a plethora of resources that could help me create the graphics I needed in a professional and aesthetic manner. The software is free to use and would help me relocate the time I would save to other

areas that needed more time. Canva offered a solution that covered all the needs for my application.

3.3 Final Decision on Technology

Concluding my decision on the technologies I will use for my process; I will use Udemy and YouTube and other online sources for educational videos and tutorials. I will code in the programming language Java in android studio for my application. For data storage, I will use firebase to store all the vital information needed to run my application. For all my UI and design elements I will be using the application Canva to create an aesthetic for the application.

3.4 Design

3.4.1 Introduction

We know the clever design of an application matters. As software development is a crucial part of the creation of an application, the design process can sometimes be neglected. We will look at some of the design ideas and inspirations that have shaped how Planta runs.

There were many design aspects I needed to take into consideration that aligned with my goals and the functionality of the application. For example, I needed a design for displaying the social media aspect of the application, the relaying of information in a simple and easy to read manner. By creating a professional UI this would entice people to return to the application.

3.4.2 Social Media Design

For the social media element, I needed to implement a design for users to be able to post images with a description. With the added functionality of liking, commenting, and sharing. I decided to look at existing social media application to have an idea as to what worked. Taking various picture posting application's into consideration

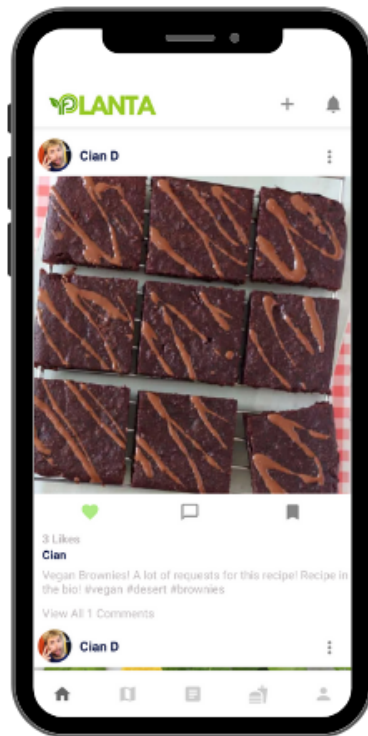


Figure 3.1: Home Page

such as Instagram, VSCO and Pinterest, I decided to take inspiration from Instagram as I felt it was the most aesthetic way of posting pictures to a timeline. Taking my inspiration from Instagram assured me that it was a design that people were comfortable with and be able to use with ease.

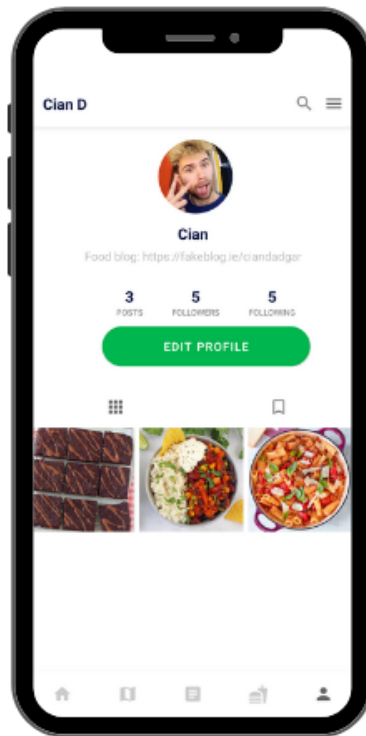


Figure 3.2: Home Page

3.4.3 Colour Scheme Design

For my colour scheme and button layouts, I wanted to stay on the same colour pallet that are used to depict plants and sustainability which is the colour green. After looking at the application with that colour scheme I decide to take inspiration from Spotify as I felt the colours matched the concept.

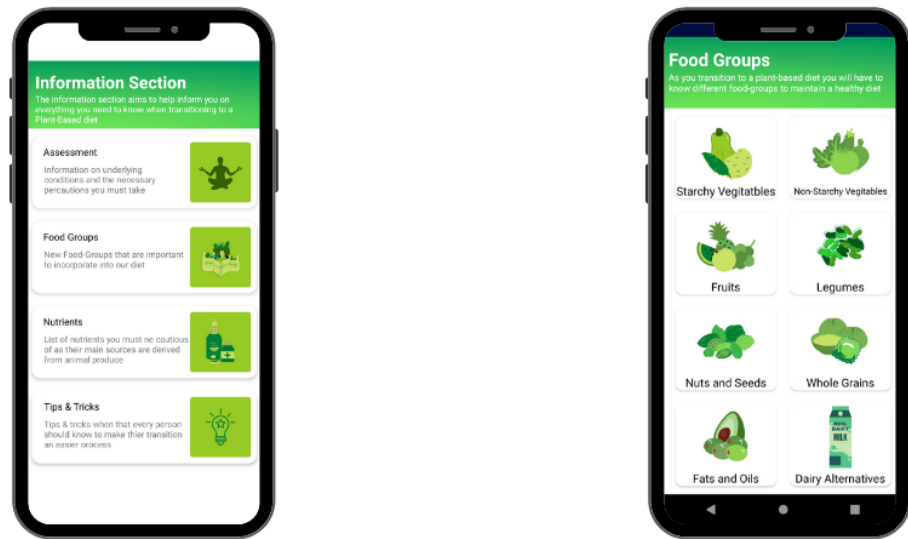


Figure 3.3: **Left:** Information Home Page **Right:** Information Sub-Section

3.4.4 Information Display Design

The most important part of my design process was deciding what way I would relay my information section as it correlated with my original problems with the information online. I needed to relay the information in a simple user-friendly way to avoid all confusion when researching. As there is a plethora of information, I decide to divide the section to reduce the initial fear of seeing a large corpus of text. I took inspiration for my information section from Headspace. Using a card view aesthetic made the relaying the information more interactive and less text-heavy. This helped me divide the sections and add pictures of the different areas to make a more aesthetic user experience when conducting the research.

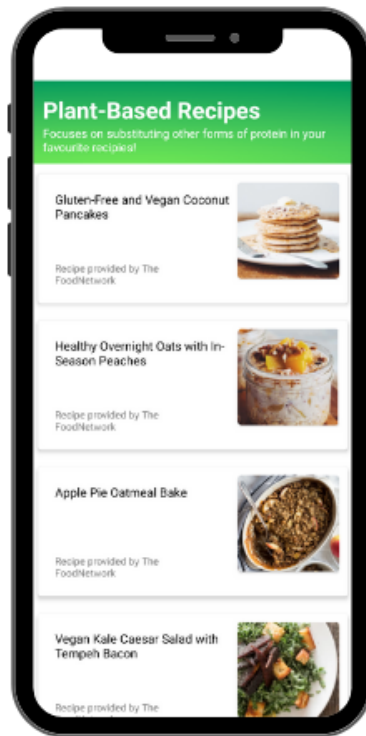


Figure 3.4: Recipe Section

3.4.5 Recipe Design

For my recipe section, I decide to use the same aesthetic as the information section by creating a card view to display the recipes. This section includes a scrollable feature where users can scroll through the recipes. On the cards, it displays the image of the recipe and the title. When this card is clicked it opens an HTML page on which I coded the recipes on.

3.5 Conclusion

Without the use of these technology the creation of Planta would have not been possible. Using Udemy and YouTube as my learning platform equipped me with the information needed to build my digital artifact. The use of firebase in conjunction with android studio made me process of creating an application smooth and easy to understand. Creating a specific aesthetic for my application was important for

tying the different sections in my application together. Through the inspiration from spotify, instagram, and headspace, this allowed me to use canva to bring my application to life.

Chapter 4

Implementation

4.1 Introduction

In this chapter I will be explaining the coding aspect of my digital artefact. As there are thousands of lines of code, I will be explaining some of the key features and how they were created. For my project I received all the code from a series of YouTube video and one website.

Firebase introduction with authentication and sign up features:

- Firebase Tutorial for Android 1 - Getting Started + Add Firebase to Android project (Knowledge, 2019)
- Firebase Android Tutorial 2 - Firebase User Registration / Authentication using Android Studio (Knowledge, 2019)
- Firebase Android Tutorial 3 - Firebase Login Authentication and Sign Out (Knowledge, 2020)

Social media: - Make An Instagram Clone Android App (2021) (Knowledge, 2021)

Cardview: -Android RecyclerView and CardView Tutorial (Coding, 2017)

HTML Recipe Section: -How to create a simple cooking recipe app(Web, 2020)

4.1.1 Sign-up/log-in Functionality

Listing 4.1: Login Code

```
private void loginUser(String email, String password) {

    auth.signInWithEmailAndPassword(email, password).
        ↪ addOnSuccessListener(new OnSuccessListener<AuthResult>()
        ↪ {
            @Override
            public void onSuccess(AuthResult authResult) {
                Toast.makeText(LoginActivity.this, "Login_Sucessful",
                    ↪ Toast.LENGTH_SHORT).show();
                startActivity(new Intent(LoginActivity.this,
                    ↪ MainActivity.class));
                finish();
            }
        });
}
```



Figure 4.1: Sign-up Homepage

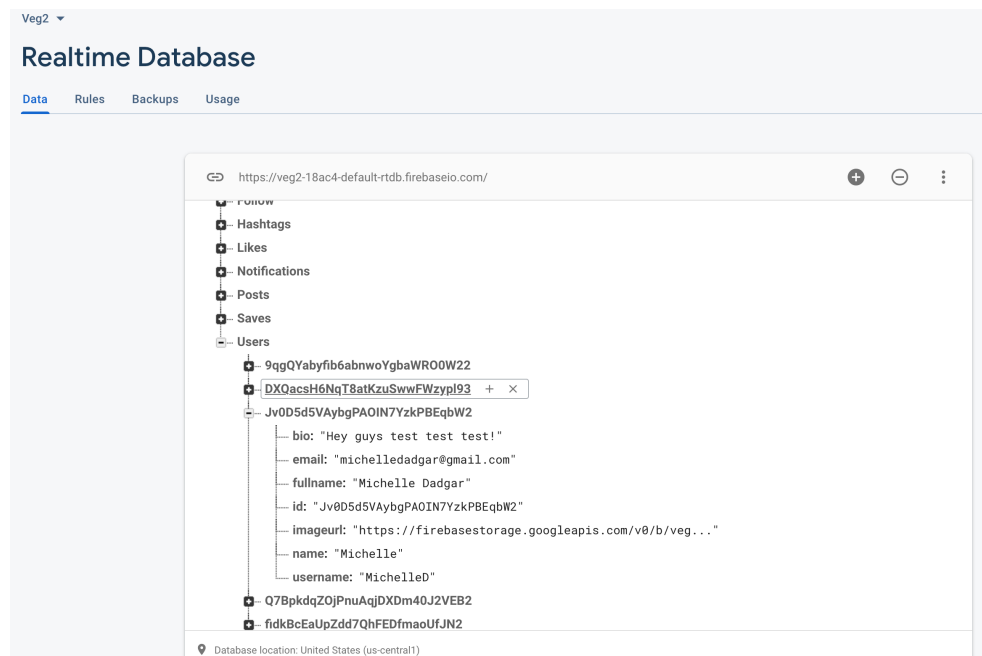


Figure 4.2: Firebase Users

The user is welcomed by the signup/login pages on initial launch of the application. This section is vitally important as it allows the user to create their profile to use on the social media application. How this works is that the original pages are coded normally to add text boxes which they will fill in accordingly. There is a button below the boxes and once it is clicked with either log the user in if they have registered or, create a new profile for the user. The way that it does with is by writing data to the database as the button is clicked. Firebase has a built-in dependence and section on their console to implement an authentication process into your application. Through this authentication process it will store the email and password that the user has entered so that they can use those credentials to log in the next time they leave the application or sign out. See listing 9.1 in the appendix for code that registers the user.

4.1.2 Recycler View

Listing 4.2: Recyclerview Code

```
recyclerView = (RecyclerView) findViewById(R.id.recyclerView);  
    LinearLayoutManager layoutManager = new LinearLayoutManager(  
        ↪ this);  
    layoutManager.setOrientation(LinearLayoutManager.VERTICAL);  
    recyclerView.setLayoutManager(layoutManager);  
    dataAdapter = new DataAdapter(this, dataModelArrayList);  
    recyclerView.setAdapter(dataAdapter);
```

Listing 4.3: Recyclerview Code

```
<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/  
    ↪ android"  
    xmlns:tools="http://schemas.android.com/tools"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    tools:context=".Information.RecipeActivity">  
  
    <androidx.recyclerview.widget.RecyclerView  
        android:id="@+id/recyclerView"  
        android:layout_width="0dp"  
        android:layout_height="wrap_content"  
        android:layout_weight="1"  
        android:scrollbars="vertical"  
        tools:layout_editor_absoluteX="8dp"  
        tools:layout_editor_absoluteY="8dp">  
    </androidx.recyclerview.widget.RecyclerView>
```

Recycler view is way to store any information and display it in a list format. This was extremely beneficial for my application and featured in a multitude of places. For the timeline and recipe section it allowed me to implement a scrollable page of posts to induce a dynamic feel to the application. Recycler view feature in a multiple other source in the list format such as followers, following, searching users and check notifications.

4.1.3 CardView

Listing 4.4: Cardview Code

```
public class NutrientsActivity extends AppCompatActivity {  
    private CardView protein;  
    private CardView b12;  
    private CardView calcium;  
    private CardView iron;  
    private CardView omega;  
    private CardView vitamind;  
    private CardView zinc;  
  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_nutrients);  
  
        protein = findViewById(R.id.protein);  
        b12 = findViewById(R.id.b12);  
        iron = findViewById(R.id.iron);  
        calcium = findViewById(R.id.calcium);  
        omega = findViewById(R.id.omega);  
        vitamind = findViewById(R.id.vitamind);  
        zinc = findViewById(R.id.zinc);  
    }  
}
```

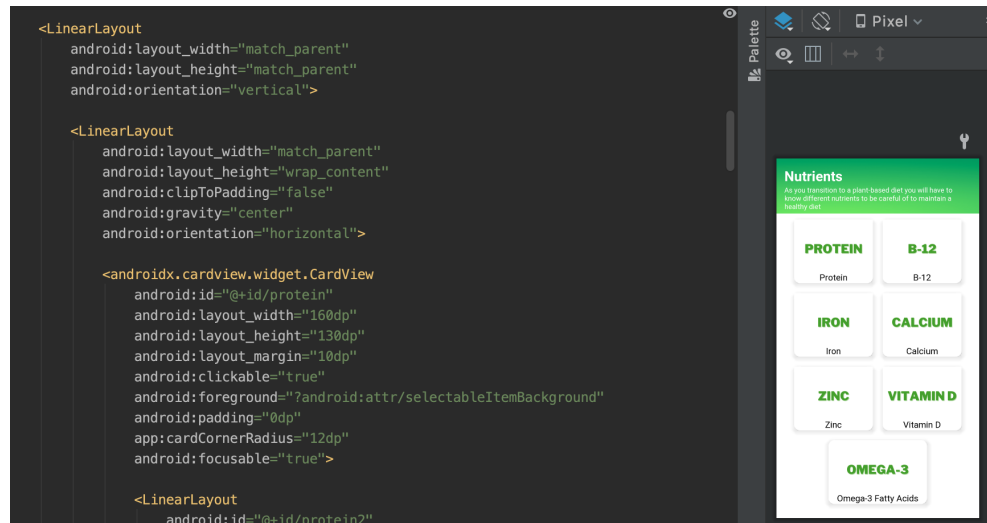


Figure 4.3: CardView Design



Figure 4.4: CardView Recipe Design

4.1.4 Maps

Android studio has a built in google maps activity that allows you to integrate google maps into your application. Following their instructions, I needed to register my project to their website where I would receive a google maps API for my application. After the maps was set up, I hard coded the locations of the best plant-based options in Cork city. I visited the website maps.ie to enter in the address of each of the establishments. From there I received their co-ordinates which I was able to create pinpoints on the map function with a title. (GPS coordinates on Google Maps | Latitude Longitude Search, 2021) See listing 9.2 in the appendix for the map function code.

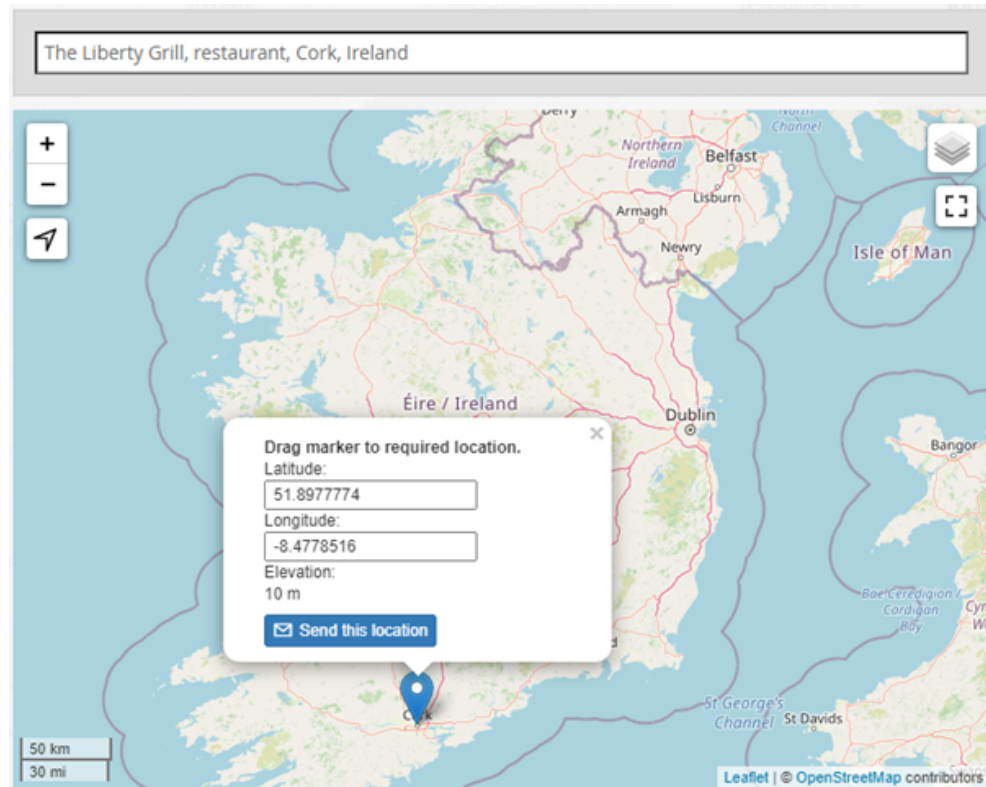


Figure 4.5: Co-ordinate Finder

4.1.5 Post Function

The post function allows the user to select or take an image from their camera library to be uploaded to the database where it can be retrieved and displayed on their profiles and timeline. Through the addition of various dependencies, when the user selects the image, they can crop the image to whatever size they want and write a description. In addition, when the user writes a hashtag or tag using the at symbol, the information is also stored in the database where it can later be searched for in the search bar. See Listing 9.3 in the appendix for post function code.

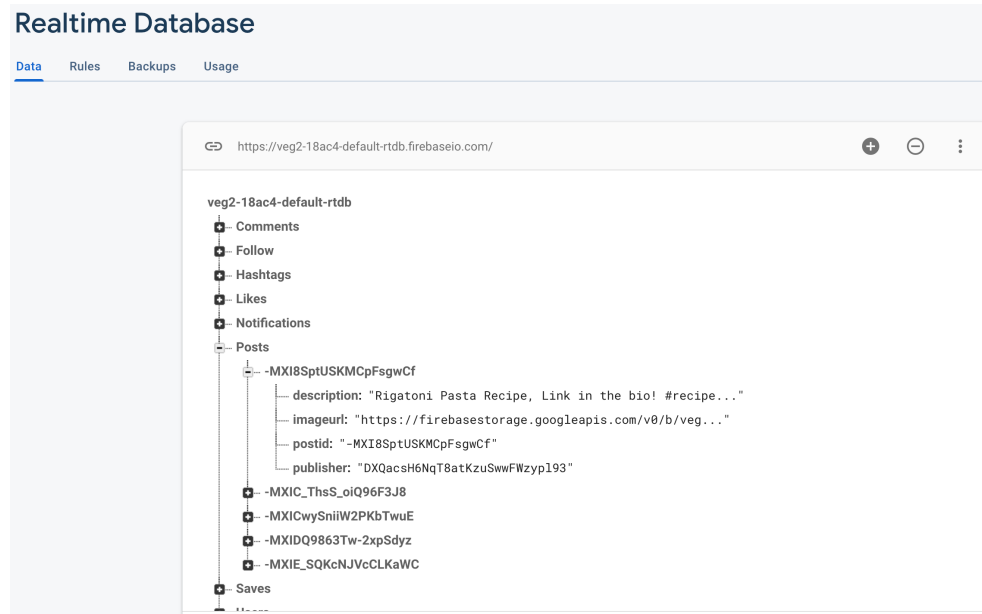


Figure 4.6: Firebase Post

4.1.6 HTML

The recipes respond to a recycler view which is linked to a to an xml file for one card. Instead of hardcoding the recipes into the application I decided to code the recipes using HTML where the users can open the HTML document when the cardview is chosen. I got the code for this idea from a website to display recipes.

4.2 Conclusion

In this section we have explored some snippets of code that show us how Planta computes its operations. In this chapter we see how my application interacts with my database through the sign-up/in functionality, and our post function. Using external dependencies such as recycler view and cardview allowed us to relay our information in our recipe and information section's, and display our posts on our timeline.

Chapter 5

Testing

5.1 Testing

5.1.1 Introduction

The importance of user testing your application from its target audience is vitally important to create a successful and flawless application. By user testing you can denote what and if there are any issues with the application functionality or design. Constructive criticisms are useful to maintain and smooth and enjoyable experience for the users of the application. My application is designed for a specific genre of people, and due to social situations on the ongoing pandemic, I have not been able to test my application among the target audience. To combat this issue, I have been able to have five technically able people to test my application and asked them to be conscious of the people that will be using the application. I felt this would suffice as the application is design for people that want to begin their transition.

5.1.2 User/Usability Testing

On completion of the application, I downloaded my application to an android tablet for testing. My reasoning for this was to ensure all users could explore the application with ease. Having a larger screen would ensure optimal design and resolution and help older users as there is more space to avoid confusion. For the test, I gave the individuals 5 minutes each to explore the application. I decided to not give them a guided tour on the first launch to further test my application

to see if users could navigate the application without help. After five minutes of exploring the application, I asked them to fill out a questionnaire asking a variety of questions in the context of the different sections of the application. This included a rating section from 1-5 and an additional comment box if they felt there was a need to add any necessary information for the proposed question. At the very end of the questionnaire, there was a section for them to comment on all aspects of the application such as concerns, constructive criticisms, or positive experiences.

1. What is your age?

1. 52
2. 24
3. 68
4. 18
5. 22

2. What is your occupation?

1. Supervisor
2. HSE worker
3. General Manger
4. Student
5. Student

3. Do you use mobile application frequently?

Do you use mobile application frequently?



Figure 5.1: Pie Chart 1

4. At first glance, what is the purpose of this application?
 1. Healthy/Nutritious recipes.
 2. Help give people information on plant-based dieting.
 3. See how one can change from regular diet to plant-based diet, underlying condition and the benefits of plant-based diet.
 4. Help people on plant-based diets.
 5. Social media application for vegetarians.
5. What are your initial thoughts on this concept?
 1. Good concept, it is a healthy lifestyle and keeps everything natural and not processed.
 2. Good concept that could help others.
 3. Very interesting with all the information section, navigation was very easy.
 4. Interesting concept and think it is needed.
 5. Great idea, would be really useful for those who need more information on plant-based diets.
6. What parts of the mobile app did you like the most? Why?

1. Information section in the subsection of the vitamins and nutrients and the breakdown.
2. Social media was a good addition to help keep the application light and fun.
3. Information section.
4. Map function as I find it hard to get good plant-based options.
5. Loved the recipe section, find it difficult to find good vegetarian recipes online.
7. What parts of the mobile app did you use the least? Why?
 1. Map function as it did not give the amount of information as the other sections.
 2. The assessment section as it did not apply to me.
 3. No parts
 4. N/A
 5. Didn't use the homepage much, found the other sections more interesting.
8. What did you think of the interface?
 1. Nice variety of colour, good attention to detail through colour schemes and relaying of essential information.
 2. Easy to use and has great features.
 3. Great interface, like the green colours to match the theme.
 4. Very easy to use and graphics were nice.
 5. Really liked the colour scheme, interface was clear and easy to use, navigation was intuitive and similar to other social media apps that I would use.
9. How frequently, if at all, would you use this feature?

5 responses

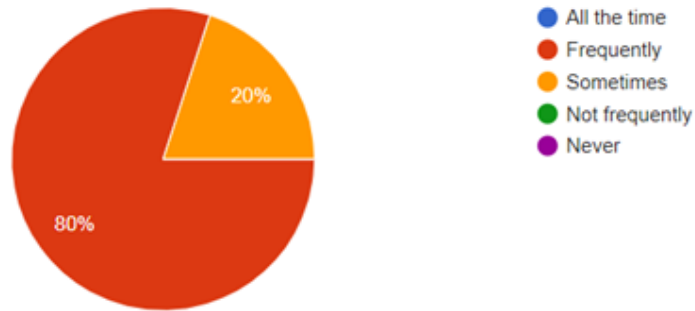


Figure 5.2: Pie Chart 1

10. What do you think about the way features and information were presented?

1. Very well presented.
2. Sections were well structured and easy to understand.
3. Easy to read and layout was nice, easy to navigate.
4. Very logically and split up into important sections easy to navigate between them.
5. Everything was clear and easy to understand.

11. Why will you keep using this web/mobile app? Why will you not?

1. For the new recipe ideas.
2. If the application is maintained and up to date, I will use it frequently to keep informed and use the social media.
3. Research is all in one place and would like to try the recipes.
4. To locate plant-based options near me.
5. I would use it to get more information if I was to change to a plant-based diet.

12. What would make you want to use this feature? What would make you not want to use it?

1. To better my knowledge on all the information as it is a relatively new concept and for improv-ing and trying recipes.
 2. Would like to try recipes and learn more information.
 3. Post pictures of my own recipes and to find other recipes from other plant-based users.
 4. To locate plant-based options near me.
 5. Very informative and easy to use, I like the social media element of it, would like to share pic-tures with friends.
13. How would you improve this feature?
1. Keep updating the recipes for new ideas.
 2. More restaurants.
 3. Get it on the Internet to get more of a reach.
 4. Add a story function like other social medias.
 5. No points, great app!
14. Do you have any addition points about the application?
1. All responses said no additional points to mention.

How did you find this task?

5 responses

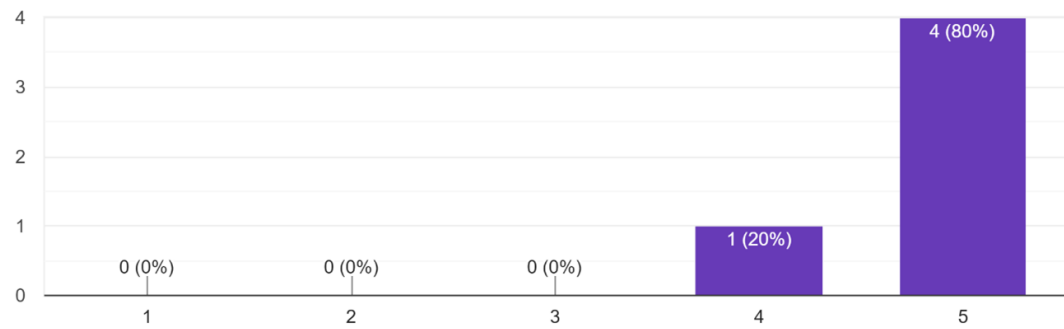


Figure 5.3: Bar Chart 1

How would you rate you technical ability?

5 responses

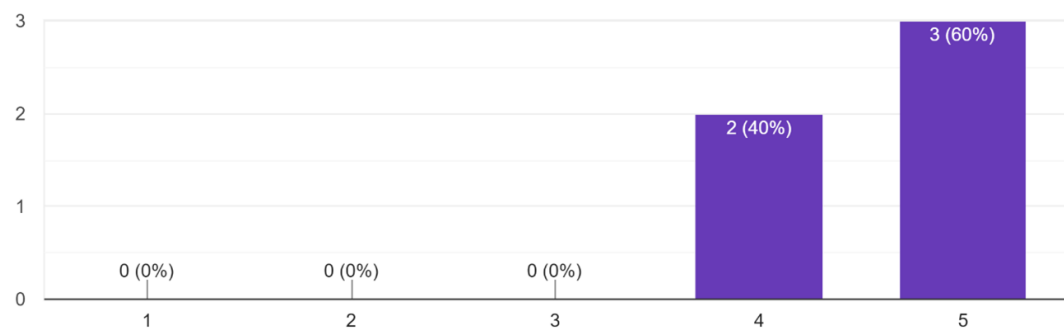


Figure 5.4: Bar Chart 2

5.1.3 Conclusion

The importance of user testing can benefit the creates by highlighting areas that need improvement or areas that should be added through suggestions. Although I was not able to conduct user testing on accurate test subjects, I believe I was able to get a accurate testing on the functionality and purpose of my application. From the results, I can conclude that my application is adequate for public use. The result show that users were able to navigate though the application with ease and had good

I found the system unnecessarily complex.

5 responses

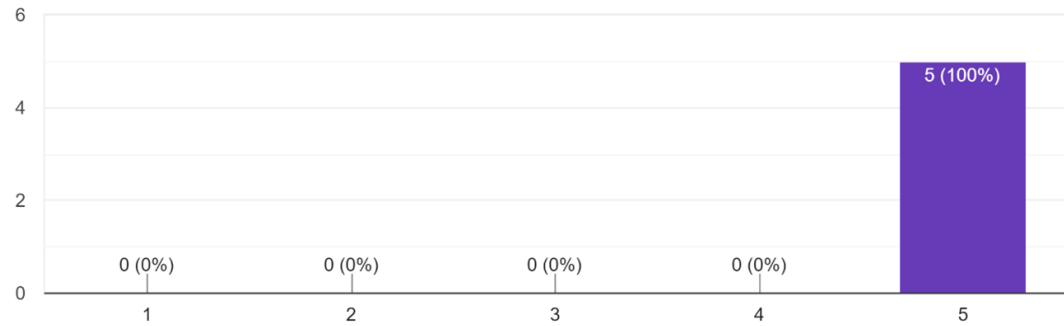


Figure 5.5: Bar Chart 3

I think that I would need the support of a technical person to be able to use this system.

5 responses

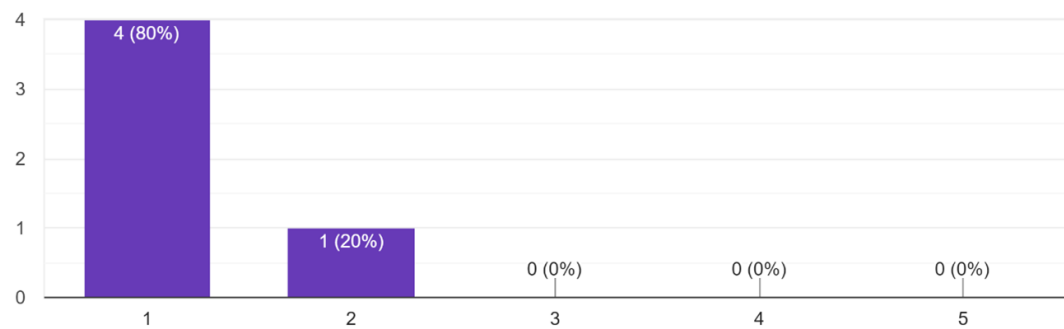


Figure 5.6: Bar Chart 4

I found the various functions in this system were well integrated.
5 responses

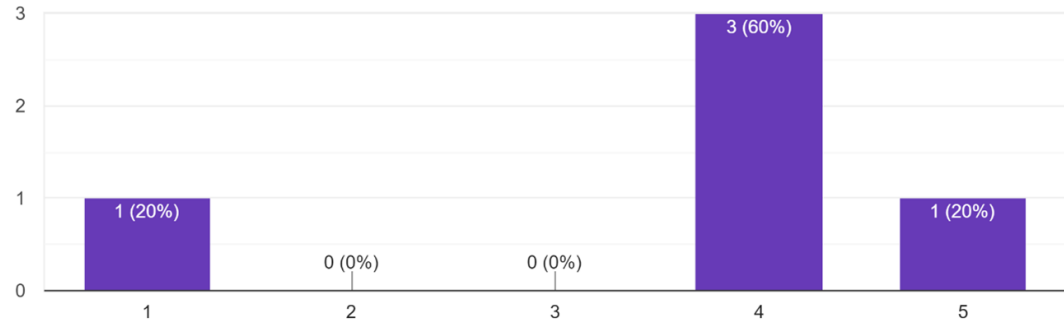


Figure 5.7: Bar Chart 5

I thought there was too much inconsistency in this system.
5 responses

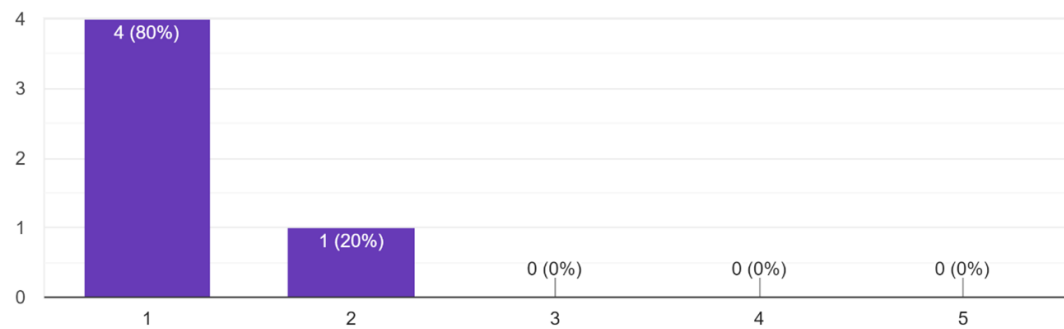


Figure 5.8: Bar Chart 6

I would imagine that most people would learn to use this system very quickly.

5 responses

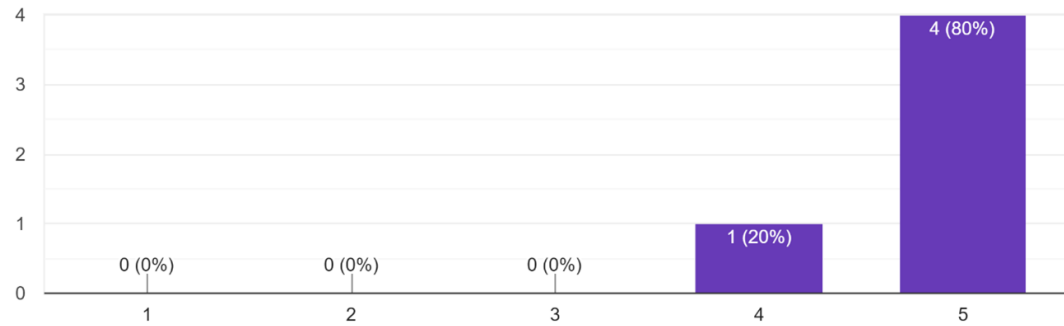


Figure 5.9: Bar Chart 7

I felt very confident using the system.

5 responses

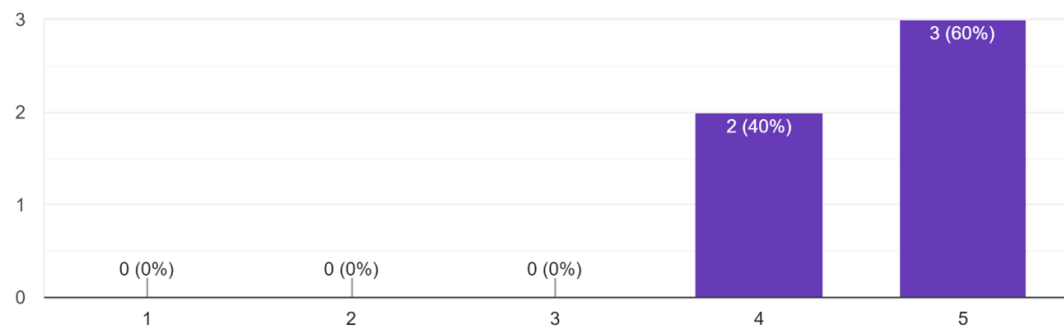


Figure 5.10: Bar Chart 8

I needed to learn a lot of things before I could get going with this system.

5 responses

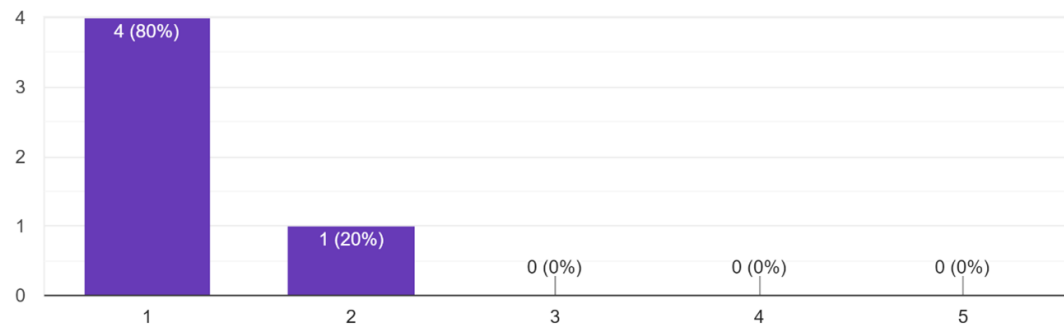


Figure 5.11: Bar Chart 9

functionality. These results show the accomplishment of combating the issues of the way the information was being relayed to the user.

Chapter 6

Conclusions

When beginning this project, I sought the idea of creating something that solved social issues and created a positive impact on society. Creating something on the topic of something I was extremely passionate about was very important to me. As we saw through our research, the idea of a plant-based diet is becoming more enticing for people across the world I felt a need for a change before popularity was past its peak and people began to suffer from the negative health complication of having misinformed knowledge on the topic

Through the creation of planta, I believe I have addressed and offered a solution that collect the necessary information and relay it to the user in a simplified way that they can understand. Creating this application was a long and arduous task that had its benefits and detriments. However, I have thoroughly enjoyed the whole experience and believe it gave me a good insight into what a job as a mobile application software engineer would look like.

I have learned a lot from the creation of this project and will hold the knowledge that will stay with me throughout the duration of my life. From the begging of my research process, I have absorbed a multitude of information that I can implement into my lifestyle and help maintain a more healthy and safe diet. Beginning this journey having no experience in any coding of java or using android studio allowed me to push myself out of my comfort zone and help me apply myself to a project. This process has helped me achieve vital experience and exposure to the different areas of a project, research, and application development. This project has helped

me improve a multitude skills that I will be able to apply in future work such as self-learning, management of time, planning, researching, and problem-solving.

Reflecting on my creation, I believe that It can help change the lives of people who are considering a transition to a plant-based diet. In the preliminary stages of planning for my project I knew I did not want to create a basic project. I wanted to give all my commitment to this project to create something that would make and change. I am extremely proud of my creation and hope for future use of the application. Studying Digital Humanities and Information technology has taught me the importance of using technology to solve social issues. Through the application of the skills learnt from my duration of study in conjunction with the new skills learnt through my process of creating this project, I hope to apply these skills throughout my work and social life to achieve and become the greatest version of myself.

Chapter 7

Future Work

Due to the time constraint of this project, I had not been able to implement all the features which I originally wanted to include in the application. Throughout the building of the application, I found that the actual coding and designing of the application took a lot longer than I anticipated. This is because I was learning everything from scratch. I had originally planned to implement a sustainability section into the application and began planning and coding this section into my application. I felt the addition of this section would be fitting as there is a direct link to sustainability and plant-based dieting as a large reason for people to transition is for environmental issues. I believe it is important to introduce more sustainability into our lives to help combat some of the environmental issues that have to hold potential fatality for the future. In this section, I would include a list of shops that could be added to our map function to help users identify which shops have sustainable options. The next section I would implement is a clothes section that would teach users what to look out for when shopping to avoid fast fashion. The next section would deal with everyday uses. To induce sustainability into your life, I plan to have small ways in which you can introduce sustainability into your everyday life. This would help the user start in small ways which would invite the idea for further sustainability. The next and concluding section would be information on planting and gardening. Due to elevated levels of deforestation, I believe this section would benefit the users by raising awareness and teach users how to care for and plant diverse types of plants and trees.

Other things I would like to implement into my application would be a barcode

scanner that allows users to see if the product is suitable for the diet that they follow. I found this to be a huge issue and an exhausting task when shopping as I had to read through the ingredients of the individual products to make sure it was suited for my diet.

Another section I would like to implement is a news section. This section could deal with both sections of the application, the plant-based dieting and sustainability. This section can display the latest and more important news and innovation in the areas of plant-based dieting and sustainability. This will benefit the application in conjunction with raising awareness for different events of organisations looking for support.

That concludes the additional feature that I would like to implement into my application, but I would also like to build on the feature which I have already implemented into my application. The section which I would like to build on would be the map function, information section and recipes section. For the map function, I would like to upscale the function to a global level by allowing user rating and submission for approval. For the information section, I would like to add a calculator that lets users input how much of the food they are eating, and it will tell them if they get enough nutrients or vitamin from their portion size. For the recipe section, I would like to build on the existing section which deals with recipes to help people transition and implement a new recipe section for users that already follow a plant-based diet.

The possibilities are endless for features that I will add value to my application and help the users and I hope in the future that I will be able to build upon this and further the benefits for the users and features for the application.

Chapter 8

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Chapter 9

Appendix

9.1 Listings

Listing 9.1: Register User Code

```
private void registerUser(final String username, final String name,  
    ↪ final String email, String password) {  
  
    pd.setMessage("Please_Wait!");  
    pd.show();  
  
    mAuth.createUserWithEmailAndPassword(email , password).  
        ↪ addOnSuccessListener(new OnSuccessListener<AuthResult>()  
        ↪ {  
            @Override  
            public void onSuccess(AuthResult authResult) {  
  
                HashMap<String , Object> map = new HashMap<>();  
                map.put("name" , name);  
                map.put("email", email);  
                map.put("username" , username);  
                map.put("id" , mAuth.getCurrentUser().getUid());  
                map.put("bio" , "");  
                map.put("imageurl" , "default");  
            }  
        }  
    }  
}
```

```

mRootRef.child("Users").child(mAuth.getCurrentUser()).
    ↪ getUid()
        .setValue(map).addOnCompleteListener(new
            ↪ OnCompleteListener<Void>() {
@Override
public void onComplete(@NonNull Task<Void> task) {
    if (task.isSuccessful()){
        pd.dismiss();
        Toast.makeText(RegisterActivity.this, "
            ↪ Update the profile" +
                "for better expereince", Toast.
                    ↪ LENGTH_SHORT).show();
        Intent intent = new Intent(RegisterActivity.
            ↪ this , MainActivity.class);
        intent.addFlags(Intent.
            ↪ FLAG_ACTIVITY_CLEAR_TASK | Intent.
                ↪ FLAG_ACTIVITY_CLEAR_TOP);
        startActivity(intent);
        finish();
    }
}
});

}

}).addOnFailureListener(new OnFailureListener() {
@Override
public void onFailure(@NonNull Exception e) {
    pd.dismiss();
    Toast.makeText(RegisterActivity.this, e.getMessage(),
        ↪ Toast.LENGTH_SHORT).show();
}
}
}

```

```

        }
    });

}
}

```

Listing 9.2: Maps Function

```

@Override

public void onMapReady(GoogleMap googleMap) {

    mMap = googleMap;

    LatLng goodday = new LatLng(51.89297795, -8.472754041764782);
    mMap.addMarker(new MarkerOptions().position(goodday).title("
        ↪ Good-Day_Deli"));
    mMap.moveCamera(CameraUpdateFactory.newLatLng(goodday));
    LatLng iyers = new LatLng(51.9013004, -8.4761633);
    mMap.addMarker(new MarkerOptions().position(iyers).title("
        ↪ Iyers"));
    mMap.moveCamera(CameraUpdateFactory.newLatLng(iyers));
    LatLng koto = new LatLng(51.8990809, -8.4740445);
    mMap.addMarker(new MarkerOptions().position(koto).title("Koto"
        ↪ ));
    mMap.moveCamera(CameraUpdateFactory.newLatLng(koto));
    LatLng liberty = new LatLng(51.8977774, -8.4778516);
    mMap.addMarker(new MarkerOptions().position(liberty).title("
        ↪ Liberty_grill"));
    mMap.moveCamera(CameraUpdateFactory.newLatLng(liberty));
    LatLng quay = new LatLng(51.8955404, -8.4748706);
    mMap.addMarker(new MarkerOptions().position(quay).title("Quay_
        ↪ Co-op"));
    mMap.moveCamera(CameraUpdateFactory.newLatLng(quay));
}

```

```

LatLng umi = new LatLng(51.8987598, -8.473108559400398);
mMap.addMarker(new MarkerOptions().position(umi).title("Umi_
    ↪ Falafel"));
mMap.moveCamera(CameraUpdateFactory.newLatLng(umi));
LatLng gaff = new LatLng(51.902761, -8.4512237);
mMap.addMarker(new MarkerOptions().position(gaff).title("143V"
    ↪ ));
mMap.moveCamera(CameraUpdateFactory.newLatLng(gaff));
LatLng Haveli = new LatLng(51.8764022, -8.4386557);
mMap.addMarker(new MarkerOptions().position(Haveli).title("
    ↪ Haveli"));
mMap.moveCamera(CameraUpdateFactory.newLatLng(Haveli));
LatLng paridiso = new LatLng(51.8971138, -8.4829027);
mMap.addMarker(new MarkerOptions().position(paridiso).title("
    ↪ Cafe_Paridiso"));
mMap.moveCamera(CameraUpdateFactory.newLatLng(paridiso));
LatLng VeganKo = new LatLng(51.8999872, -8.4775869);
mMap.addMarker(new MarkerOptions().position(VeganKo).title("
    ↪ VeganKo"));
float zoomlevel = 14.0f;
mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(VeganKo,
    ↪ zoomlevel));
}
}

```

```

private void upload() {

    ProgressDialog pd = new ProgressDialog(this);
    pd.setMessage("Uploading");
    pd.show();

    if (imageUri != null){
        StorageReference filePath = FirebaseStorage.getInstance().
            ↪ getReference("Posts")
                .child(System.currentTimeMillis() + "." +
                    ↪ getFileExtension(imageUri));
        StorageTask uploadtask = filePath.putFile(imageUri);
        uploadtask.continueWithTask(new Continuation() {
            @Override
            public Object then(@NonNull Task task) throws Exception
                ↪ {
                    if (!task.isSuccessful()){
                        throw task.getException();
                    }
                    return filePath.getDownloadUrl();
                }
        }).addOnCompleteListener(new OnCompleteListener<Uri>() {
            @Override
            public void onComplete(@NonNull Task<Uri> task) {
                Uri downloadUri = task.getResult();
                imageUrl = downloadUri.toString();

                DatabaseReference ref = FirebaseDatabase.
                    ↪ getInstance().getReference("Posts");
                String postId = ref.push().getKey();
            }
        });
    }
}

```

```

HashMap<String , Object> map = new HashMap<>();
map.put("postId", postId);
map.put("imageUrl", imageUrl);
map.put("description", description.getText().
    ↪ toString());
map.put("publisher", FirebaseAuth.getInstance().
    ↪ getCurrentUser().getUid());
//pushes data to the database
ref.child(postId).setValue(map);

DatabaseReference mHashTagRef = FirebaseDatabase.
    ↪ getInstance().getReference().child("Hashtags"
    ↪ );
List<String> hashTags = description.getHashtags();
if (!hashTags.isEmpty()){
    for (String tag : hashTags){
        map.clear();
        //make it easier for users to search the
            ↪ hashtags
        map.put("tag", tag.toLowerCase());
        map.put("postId", postId);

        mHashTagRef.child(tag.toLowerCase()).child(
            ↪ postId).setValue(map);
    }
}

pd.dismiss();;
startActivity(new Intent(PostActivity.this,
    ↪ MainActivity.class));

```



```

        finish();
    }
}).addOnFailureListener(new OnFailureListener() {
    @Override
    public void onFailure(@NonNull Exception e) {
        Toast.makeText(PostActivity.this, e.getMessage(),
            ↪ Toast.LENGTH_SHORT).show(); //e.get messages
            ↪ tells us exactly what went wrong
    }
});
} else {
    Toast.makeText(this, "No image was selected!", Toast.
        ↪ LENGTH_SHORT).show();
}
}

private String getFileExtension(Uri uri) {
    return MimeTypeMap.getSingleton().getExtensionFromMimeType(
        ↪ this.getContentResolver().getType(uri));
}

@Override
protected void onActivityResult(int requestCode, int resultCode,
    ↪ @Nullable Intent data) {
    super.onActivityResult(requestCode, resultCode, data);

    if (requestCode == CropImage.CROP_IMAGE_ACTIVITY_REQUEST_CODE
        ↪ && resultCode == RESULT_OK){
        CropImage.ActivityResult result = CropImage.
            ↪ getActivityResult(data);
    }
}

```

```
        imageUrl = result.getUri();

        image_Added.setImageURI(imageUri);
    } else {
        Toast.makeText(this, "Try Again", Toast.LENGTH_SHORT).show
            ↪ ();
        startActivity(new Intent(PostActivity.this, MainActivity.
            ↪ class));
        finish();
    }
}
```

Listing 9.4: Recipe Function

```

public class RecipeActivity extends AppCompatActivity {
    public DataAdapter dataAdapter;
    public RecyclerView recyclerView;
    public ArrayList<DataModel> dataModelArrayList=new ArrayList<
        ↪ DataModel>();

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_recipe);

        inputData("Gluten-Free_ and _Vegan _Coconut _Pancakes", "B1.html");
        inputData("Healthy _Overnight _Oats _with _In- _Season _Peaches", "B2
            ↪ .html");
        inputData("Apple _Pie _Oatmeal _Bake", "B3.html");
        inputData("Vegan _Kale _Caesar _Salad _with _Tempeh _Bacon", "L1.html
            ↪ ");
        inputData("A _Classic _Tuna _Melt _Sandwich _with _A _Vegan _Twist", "
            ↪ L2.html");
        inputData("Rainbow _Quinoa _Taco _Salad _with _Vegan _Dressing", "L3.
            ↪ html");
        inputData("Baked _Falafel _Sliders _with _Tabbouleh _and _Maple _
            ↪ Tahini _Sauce", "L4.html");
        inputData("Maple _Chipotle _Bbq _Cauliflower _Wings", "L5.html");
        inputData("Creamy _Vegan _Cauliflower _Mac _and _Cheese", "L6.html")
            ↪ ;
        inputData("Candied _Maple _Balsamic _Brussels _Sprout _Skewers _with
            ↪ _Red _Onion", "D1.html");
        inputData("Black _Bean _Veggie _Burger", "D2.html");
        inputData("Vegan _Spaghetti _Bolognese", "D3.html");
    }
}

```

```
inputData("Cashew_Mushroom_Sliders","D4.html");  
inputData("Vegan_Meatballs_with_Over-Roasted_Tomato_Sauce","D5  
    ↪ .html");  
inputData("Vegan_Nachos","D6.html");
```