

CCT College Dublin

“Guess What?” Application Design

Course Title:	Bachelor of Science in Computing and Information Technology – Year 2
Module Title(s):	Integrated Application Development & Research Skills
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The topic of the problem:	Health and daily food waste in a society where time is limited.

Declaration

By submitting this assessment, I confirm that I have read the CCT policy on Academic Misconduct and understand the implications of submitting work that is not my own or does not appropriately reference material taken from a third party or another source. I declare it to be my own work and that all material from third parties has been appropriately referenced. I further confirm that this work has not previously been submitted for assessment by myself or someone else in CCT College Dublin or any other higher education institution.

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Abstract

In the last two decades, the lifestyle of each person has constantly changed, adapting to the new technologies that surround them, and implementing them in their daily lives. Decision-making has changed in the last two years with the pandemic, affecting people's eating habits. For this reason, this application aims to optimize people's time in making decisions when making their supermarket purchases and in turn, reduce food waste that is a consequence of not making good decisions about daily consumption, helping have clear menu ideas that fit the lifestyle in terms of time and health.

Keywords: menus healthy, optimize time, food waste, smart decisions

Introduction

The COVID-19 pandemic has disrupted economic stability, stress levels, and daily routines. As we try to return to our daily activities and adjust to a new reality every day, infectious disease and economic experts have indicated that our lives will not simply return to pre-COVID-19 normalcy (Carroll, et al., 2020). Our way of life has fundamentally changed. To identify the best way to support each person in this post-COVID-19 context, we need to understand how these fundamental changes have impacted each person's health, food waste, and the value of time (Lopez Barrera & Hertel, 2021). Food waste has negative economic, social and environmental impacts, and its importance has increased in recent years. Worldwide, the annual amount of food waste is nearly 1.3 billion tonnes, equivalent to about one-third of global food production (Amicarelli & Bux, 2021). The Covid-19 pandemic, among other social and health challenges, has dangerously affected the economy and all industrial sectors, from agriculture to food manufacturing, greatly impacting household food consumption. Since the largest amount of food waste is generated in households, the increase in household food consumption has inevitably translated into the generation of waste, including food waste. But not everything in this pandemic has been bad, one of the benefits it has brought is the technological reach of older adults (Garske, et al., 2020). Research has shown that older adults before the pandemic were limited in their use of technology, but now for the past two years, it has been a critical aid in communicating with family members and shopping online. This has been an opportunity for older adults to feel more comfortable using technology and have at their fingertips many previously limited opportunities (Morrow-Howell, et al., 2020). The main objective of this work is to be able to

make an application that allows the three factors: health, food waste, and time, to be implemented and to be able to help people by consuming consciously and saving their time in making decisions about what to eat daily. It is intended to be an attractive application for young people, adaptable for people in their daily routine, and a friendly environment so that older people can easily access it.

Consequences of eating habits

The importance of healthy eating has increased in recent years, due to the diseases that young people between 15 - 23 years of age and young adults between 24 - 33 years of age have developed, such as cholesterol, high triglycerides, diabetes, and type II obesity. Adults and older adults live with the consequences that they could develop in this age range with the lifestyle and sedentary lifestyle that people of mature age develop. These diseases are a consequence of the bad eating habits suffered by people in these age ranges due to the lifestyle they lead. Most of this population group is affected by the time they spend planning their daily diet. Being affected by the stress they live with daily and not the benefits of each food. Our body is not subjected to the same challenges as previous generations, stress has affected it because it secretes the hormone cortisol that helps the body to be alert by increasing heart rate, however, our body is not designed to remain in this state for a long time and this chronic stress is what is behind multiple pathologies: depression, obesity, anxiety attacks and even Alzheimer's.

Developing the app

The main objective of this company to fulfill the following:

Mission

To create better days for people planning their weakly meals.

Vision

Providing multicultural meals to people that are wondering what to eat guided by a time-efficient app that takes care of our body and our environment.

Core values

- Diversity: Demonstrate commitment to all individual with different cultures and backgrounds and provide them different food options.
- Passion: We are passionate about making our business grow based on the happiness our customers.
- Humility and hunger to learn: Be open and curious to learn from everybody, anywhere that can help us to provide continuous improvement and understanding customer's satisfaction
- Simplicity: Our business is engaged providing our customers what they need, when they need in the most transparent and easier way.

This project will aim to design and develop a mobile application in different operating systems to provide recipes that help users to optimize their time in preparing them and in the purchase of the products necessary for their preparation, reducing the waste of foods and helping the user to choose recipes that match their lifestyle and tastes.

Objectives

- Search for a framework that adapts to develop the application in different operating systems.
- Find a marketing strategy through social networks.
- Make the system attractive to the user.
- Make the application environment friendly for older people.
- Conduct a professional search for the preparation of recipes.
- Compare the market with different similar apps.
- Make recipes easy and quick to follow.
- Find that our database is suitable for the system.
- Carry out a demo test so that users can give their opinion before launching it on the market.
- Continue searching through surveys for what the user needs by comparing them with previous surveys.

Future customers

A survey was conducted on 360 people (Appendix 1) where questions were asked to assess the user's needs, where 92.5% were women and 47.5% are in the age range of 36 - 50 years and 22.5% are older than 50 years. This gives us a result that the people most interested in this application are adults and most of them work full time. These results will help us to make an app with an easy-to-use environment. However, 49.4% would not be willing to pay for a premium service, which could be considered if it is the best option to obtain extra income from this app.

Our app is addressed to:

- People on the go
- Age between 25-30 years
- Age between 45-55+ years
- Users with mobile devices
- Users with difficulty with technology

Our product will be made visible through:

- Advertising on social networks
- Commercials on web platforms
- User recommendation
- Offering free month of monthly membership

Current market

In the market, there is a variety of mobile applications that are developed to provide healthy diet services complemented with physical activity. There are very few applications where they optimize the time they spend preparing recipes and generate the shopping list with the necessary products and quantities required. One of the applications that come close to this similarity is Cookidoo, which offers the following services:

- Over 70,000 recipes in multiple languages to support any lifestyle.
- Classify and organize your favorite recipes and collections.

- Choose, plan and prepare weekly menus, search filters and personalized shopping lists.
- Easily share recipes and shopping lists with family and friends.
- Access the recipes wherever and whenever you want from your mobile, your tablet, your Thermomix® TM6 or your computer.

This app is available on iOS and Android systems. It has the 48th place of downloaded applications in the health area in the App Store with more than one million downloads. This app offers a 30-day free trial and the yearly subscription is €45. The reviews of this application are good, however, the service is not free and many of its recipes are designed to be made with this brand's product, which is Thermomix. Where the user has to figure out how to follow these recipes alternately or be forced to buy this product.

Environment Analysis

In the development and release of this application in the market, it is considered that this application will encounter circumstances that affect planning. These risks were considered following the PESTEL technique shown below:

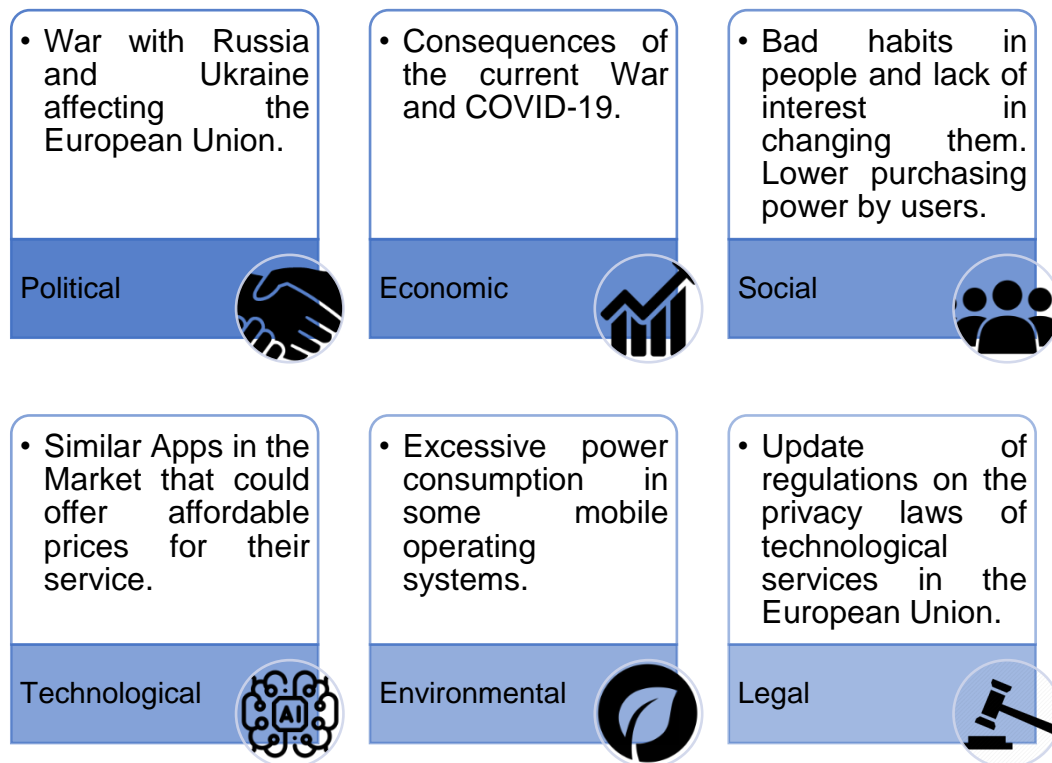


Diagram 1. Risk estimation is based on the PESTEL technique.

Organizational team

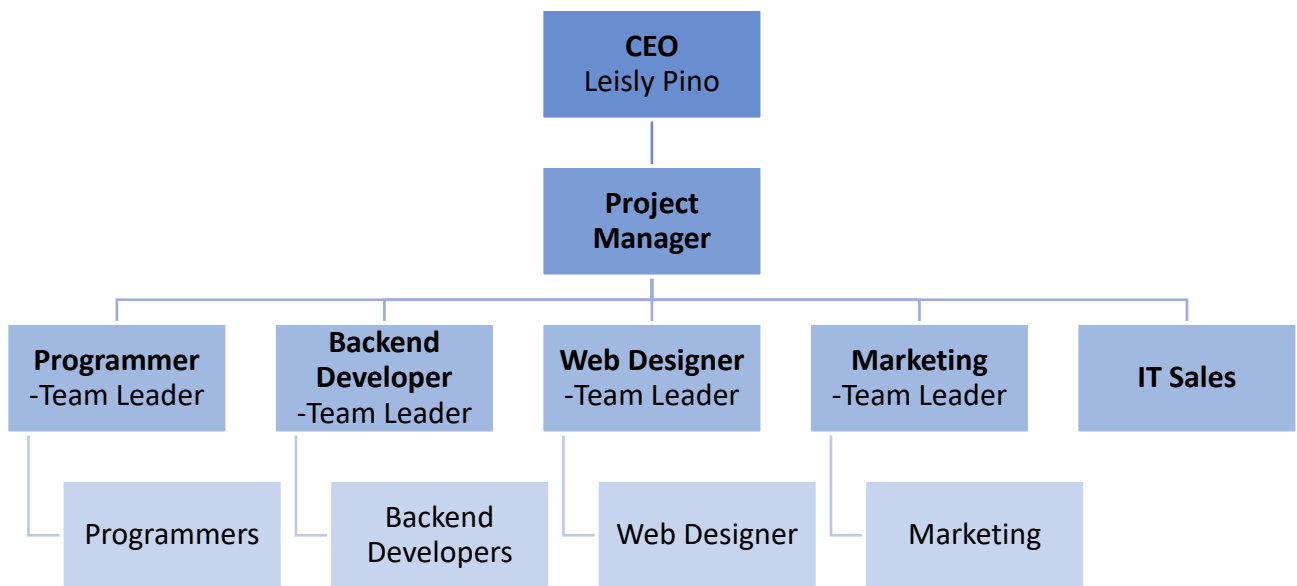


Diagram 2. Organizational diagram of the people who will develop this project.

To carry out this application you need to have a team, necessary work, and computer equipment to work. It is estimated that the following team will be needed:

Members	Members required	Salary per year	Total estimated
Project Manager	1	€50,000	€50,000
Programmer	3	€45,000	€135,000
Backend Developer	3	€45,000	€135,000
Web Designer	2	€40,000	€80,000
Marketing Team	2	€37,000	€74,000
IT Sales	1	€40,000	€40,000
Total			€514,000

Table 1. Estimated salary and team members to develop the app.

The following table shows an estimate of the necessary equipment and the cost:

Computer equipment	Required equipment	Cost	Total estimated
ThinkPad E14 Gen 2 (AMD)	4	€ 882.75	€3,531.00
ThinkPad C13 Yoga Chromebook Enterprise	2	€ 769.99	€1,539.98
Lenovo Legion 5i Gen 6 (17" Intel)	6	€ 1,149.99	€6,899.94
Total			€18,870.86

Table 2. The estimated cost of computer equipment.

What is Guess What?

An application will be designed called "Guess What?" to help organize the week's menu. The decision was made to make an application to be easier to use and the user interaction is better and is available at all times that he has his cell phone with him. In this application, you will have a variety of recipes that the user can choose the type of food that they like the most, when the user adds a recipe to be made in the week, this app will automatically generate the things that they need in the supermarket list. This will generate time savings and make necessary purchases, with the items that will be used in the week. To obtain extra profits in the application, it was considered to make a premium plan with an extra cost, where a calorie counter could be carried in the prepared recipes.

This service will have two types of accounts that the user can choose:

1. Free membership: It will offer a free service where the user can have all the application's recipes in the different available languages.
2. Monthly membership: Priced at €9, where the user will have the option to edit their recipes and be able to share these recipes with their friends within the app with the same type of plan.

Financial plan

The estimated lifetime of this project is 5 years. The marketing budget will be distributed 80% in the first 3 years and 20% in the last 2 years (this budget excluded the marketing salaries). The reason for this is that we will need a higher amount of money to launch the product in the market, gain customers and keep their confidence in the product. Once this is reached, the product will be in a mature stage where new competitors will enter the market with new products and our company will only promote the improvements and updates of our product that will keep them marketable.

Year	Marketing budget
2023	€50,000
2024	€50,000
2025	€50,000
2026	€18,750
2027	€18,750
Total	€187,500

Table 3. Marketing budget per year.

The budget to develop this project is €535,970.92, considering the salaries of the people who will be developing this application during the first year and the computer equipment that each member will need. A bank loan calculation was made that will be paid in 5 years (Appendix 2). To calculate our profit entries the following assumptions were made:

Assumption	
Premium subscription:	50,000 with an increase of 15% per year
Downloads	100,000 increase 15%
Advertisement	30,000 Chain of restaurants with an increased of 20% per year
Bigdata	70,000 per year, valuable data for companies in the food industry

Table 4. Assumptions are considered in the financial process.

The measure of success of our company will be based on getting a minimum of 50,000 subscriptions to the Premium account and a minimum of 100,000 downloads in a free membership in our first year of launch, having an annual increase of 15% in the following years. This analysis is based on the query made in Appendix 1, where word of mouth marketing will help increase sales up to 15% per year together with the original marketing strategy, always managing to satisfy the needs of the customer. The breakdown of this budget is found in detail in Appendix 2, where the payroll taxes were also calculated considering a 20% employer tax and a 5% yearly increase in insurance.

Process planning

In this project, we will be working with essential steps to develop this application in time. When making an app, mistakes and setbacks can be made in the development, an approximate 4 – 10 months is made for the development of this in the following scheme:

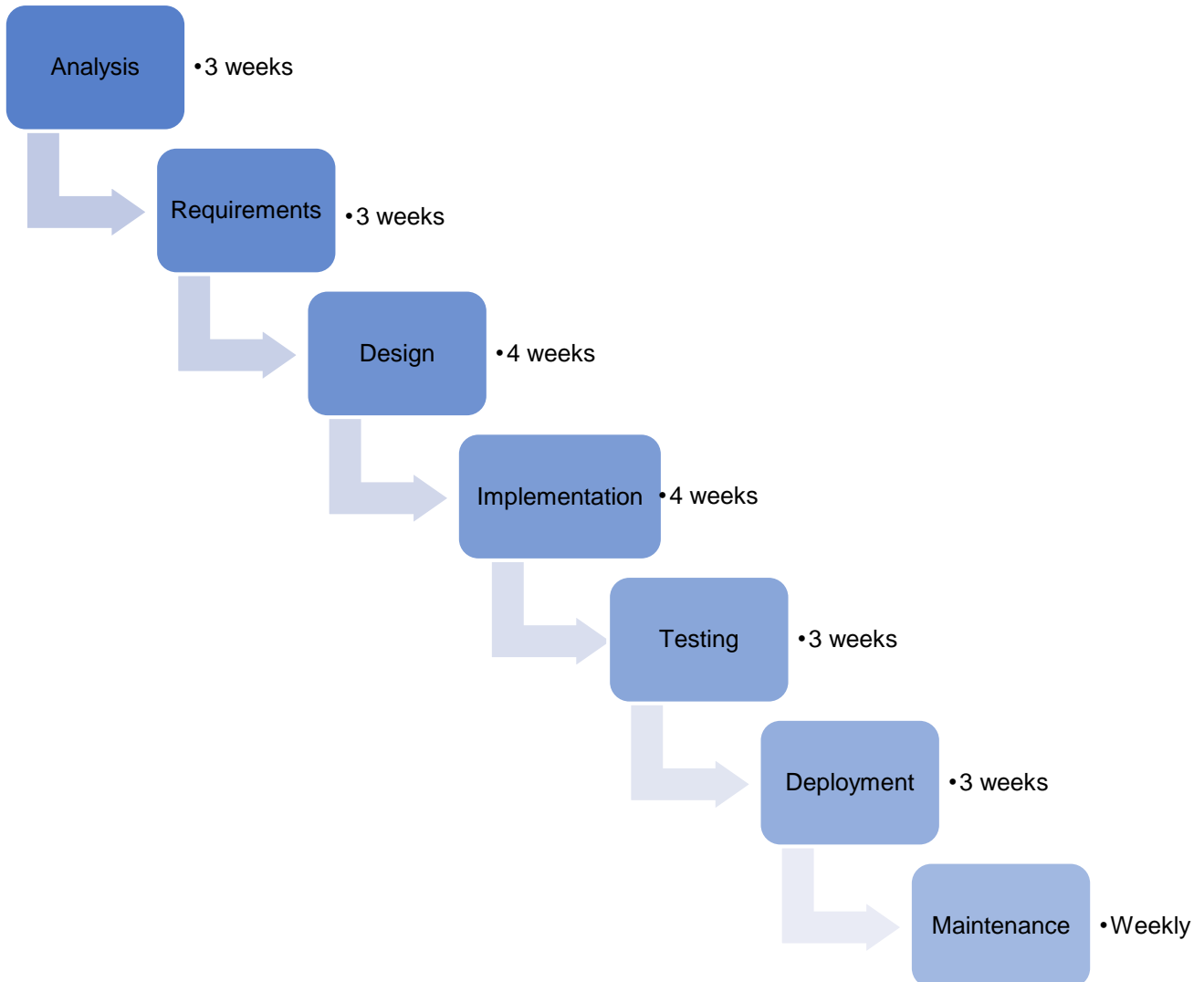


Diagram 3. Time estimation is based on the Waterfall methodology.

Design

An app that is developed in a suitable framework for different operating systems will be required. One of the options is Electron, which will allow us to work in a friendly environment that is easy to detect errors. The programming codes will be working and developing on

Github. At this point, the opinion of the stakeholders will be taken to know their needs and take into account their requirements when developing this app.

Implementation

At this point, the programmers, web designers, and backend developers will be involved where they will be working together with the activities that will be assigned to the Project manager. The best environment to develop this app will be on GitHub where they can work together on issues along the way. The marketing team will be working on the right strategies for the launch and IT sales will be analyzing the market.

Test and Integration

The app will be integrated with the direction of the project manager who will designate the people who will be involved and will take the opinion of the stakeholders if some errors are considerable, leave them, and continue working on them in future updates of the system.

Reports

Each person in this project will be keeping weekly reports, to keep track of problems and analyze how progress has been made in the project, as well as find common errors that can be repeated, as well as errors that changed direction and established points in the main plan. Stakeholders will be able to give opinions and evaluate the progress of the project with these reports.

Maintenance

Based on the reports that we will be generating periodically, we will review the details and updates that our application will have to improve. We will be working with the marketing team to define and evaluate outreach strategies for new users and the continued use of established users.

Conclusions

In this project, an analysis was made of the problem of the time that people dedicate to making their weekly purchases in the supermarket and how this has an environmental impact, even if the waste is minimal, everything counts in a population as large as Dublin and the lifestyle that takes place in this city, where the pace is very fast and time is precious. This would also apply to cities with a large population. In the first analysis presented in Appendix 1, it was concluded that this application would be attractive in general for women between the ages of 30 – 50+ years, due to this the application will have a friendly and easy environment for the user to interact. In this project, a market analysis was carried out with other companies that offer a similar service and, however, none were found that offered free services, so it is believed that the scope of this application would be very useful for many people, also helping their economy. To confirm this theory and to be able to launch this application on the market, it is necessary to carry out an adequate market study, this means that in this project it was not possible to make a hypothesis with a point of comparison with already established databases, since none of the that are free accounts with enough information to know if it is appropriate to continue. This could not be considered since this project sees four different areas: health, food, time, and food waste. It is proposed to carry out another survey in different regions, specifying the information that is needed to evaluate our first survey. This point did not prevent an adequate budget from being made, since average data was taken on the scope of an application that it has in its first year of life in the market and how it can increase by offering the service that the user needs and applying a good strategy. of marketing. The data showed that it is a promising application that would offer profits in its second year of life in the market, considering an investment that would take 5 years to pay off, since it was 5 years of life that this application was proposed to have, the main reason is that we are in a stage where the lifestyle in the work and study area is becoming remote and working from home, this may affect the attraction of people since most of their purchases under this situation are online.

Appendix 1

Survey of 360 people with different age ranges and employment statuses. The link for this survey is: <https://forms.gle/4aMeunva1S47muDP6>



GUESS WHAT?

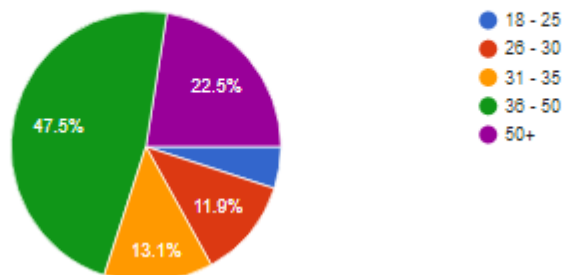
Guess What? It will be an app that will help plan the week's menu with recipes of the style of food that you prefer while making the supermarket list facilitating your purchases and avoiding unnecessary food consumption.

PRIVACY PERSONAL DATA

The following questionnaire will be used for general analytical use only. The answers will be anonymised and your responses will not be connected to you in any way whatsoever. You will not be added to any mailing list afterwards. Only numerical results will be display and with the pure purpose of completing an assessment at the CCT College. Proceeding to the survey implies that you understand and agree to provisions in this disclaimer.

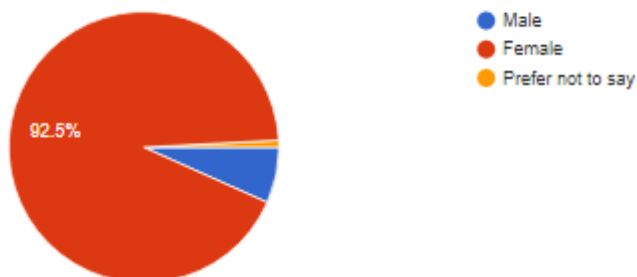
1. What is your age range group?

360 responses



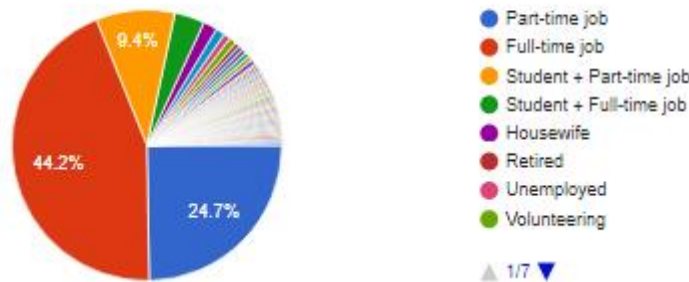
2. What is your gender?

360 responses



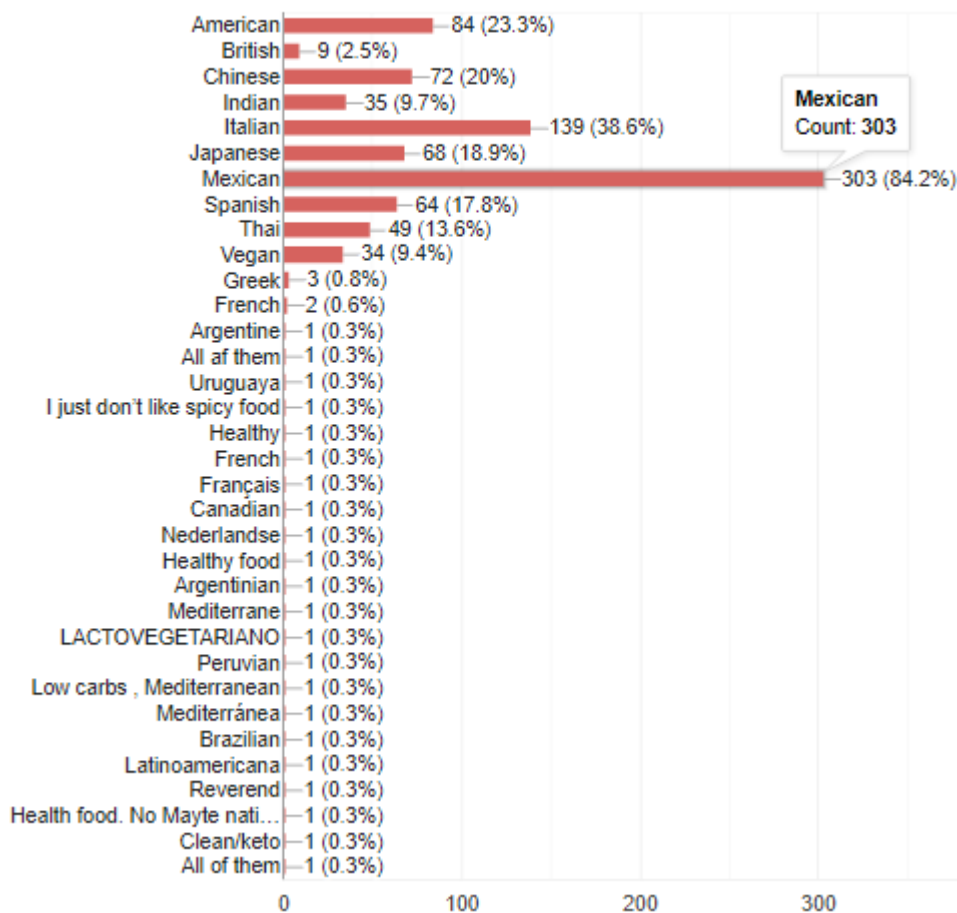
3. What do you do for a living?

360 responses



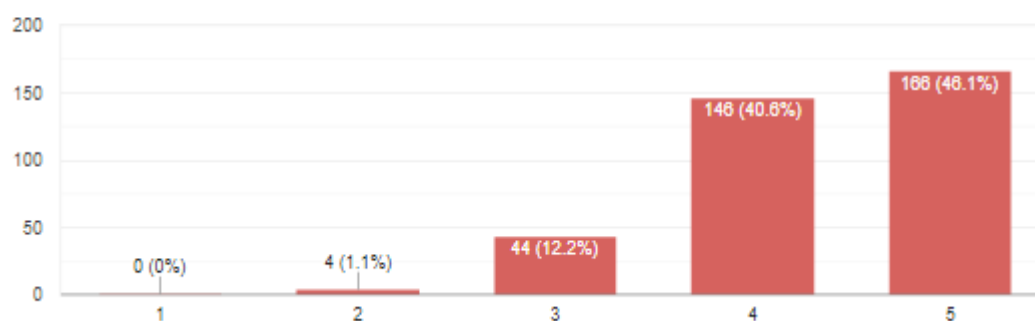
4. What kind of food do you prefer?

360 responses



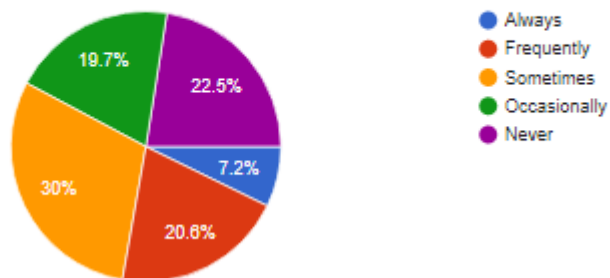
5. From 1 to 5, how important is it for you to eat a healthy diet? 1 not important and 5 very important

360 responses



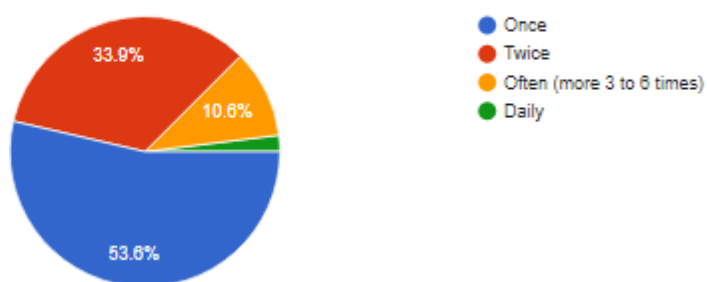
6. Do you plan a weekly menu?

360 responses



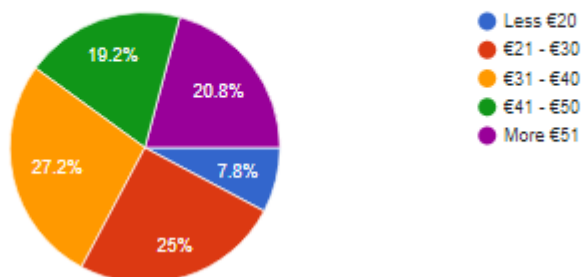
7. How many times a week do you go to the supermarket?

360 responses



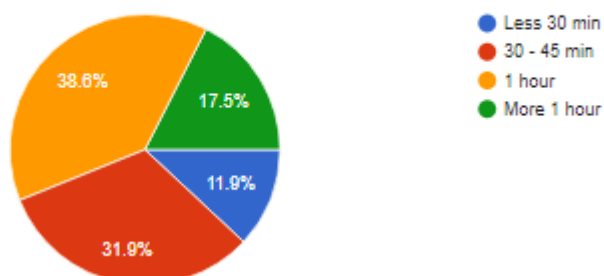
8. On average, how much do you spend on your food in the week? Per person:

360 responses



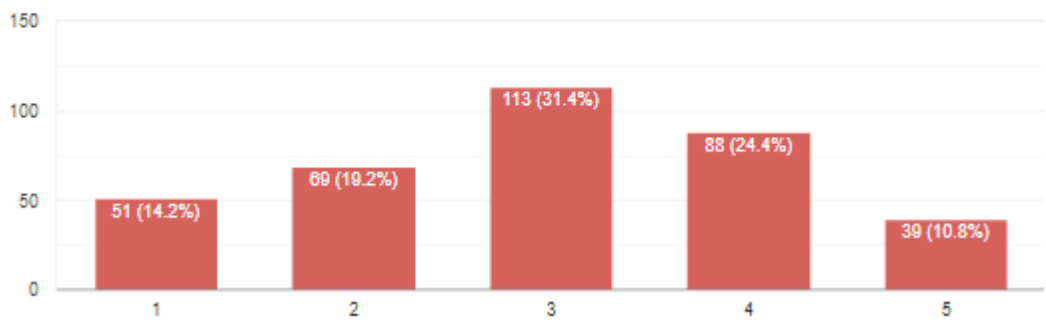
9. What is your average time to do the grocery shopping?

360 responses



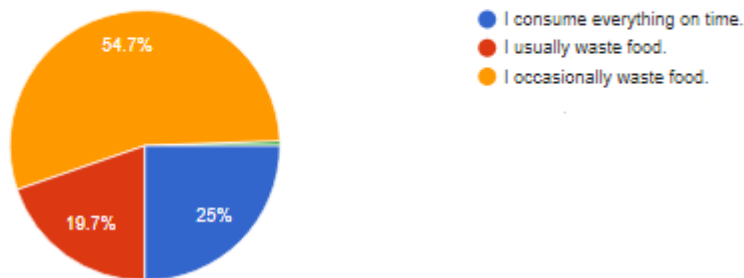
10. From 1 to 5, how difficult is it for you to decide the things you need to eat? 1 not difficult and 5 very difficult

360 responses



11. The food you buy in the week often expire or is unusable, what do you consider to be your case:

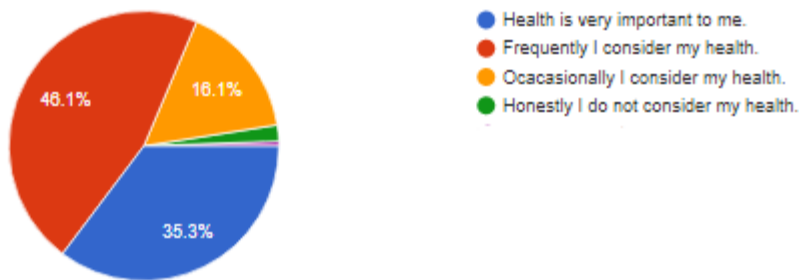
360 responses



When you do your shopping at the supermarket:

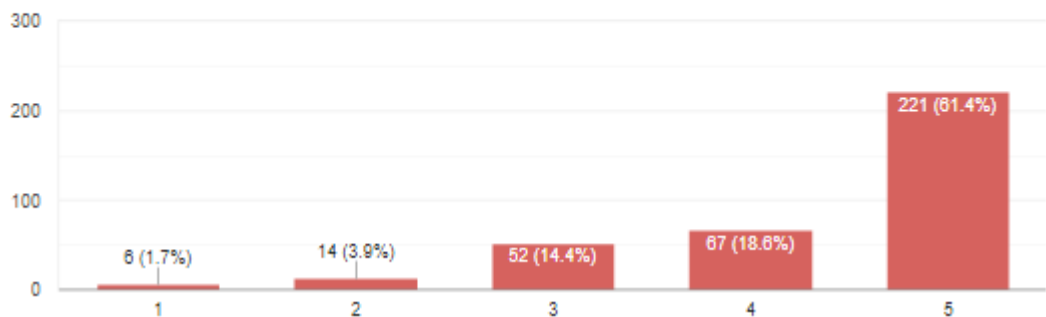
12. Do you consider your health when choosing your products?

360 responses



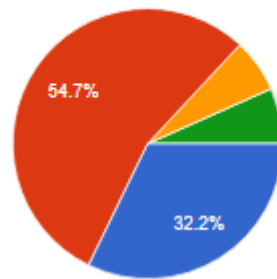
13. From 1 to 5, how much does it help you to have a shopping list? 1 not helpful and 5 very helpful

360 responses



14. By having a shopping list, do you think you save money?

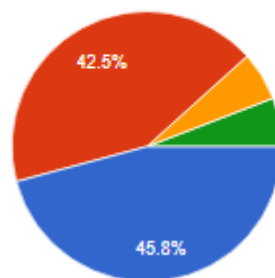
360 responses



- Yes, I only buy what is on the list.
- Sometimes, spend money buying extra things.
- I have not thought about that.
- Make no difference.

15. By having a shopping list, do you think you save time?

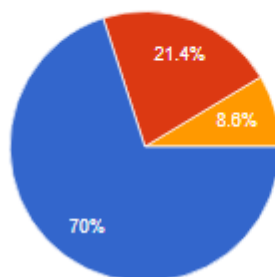
360 responses



- Yes, I just look to pick up what is on the list.
- Sometimes, spend time buying extra things.
- I have not thought about that.
- Make no difference.

16. If there was an app that helped you plan your menus and shopping list for the week, would you give it a try?

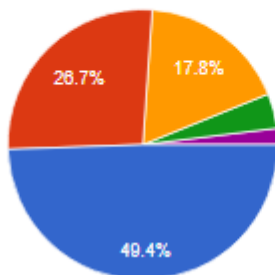
360 responses



- I would download the app and give it a try.
- I would wait to see the reviews.
- No, I like the way I do my shopping.

17. If there was a premium service with a menu with calories per meal, would you pay for this service? Monthly price:

360 responses



- I would not pay for this service
- €1 - €4
- €5 - €9
- €10 - €14
- €15 - €19

Thank you for your time and contribution to this assessment. -Leisly Pino 2020303.

Appendix 2

Cost and investment tables made considering 5 years of the life of this project, with an initial cost of €535,970.92, obtaining profits in the second year of life of this application in the market.

START YEAR	2023
END YEAR	2027

REVENUE	2023	2024	2025	2026	2027
Gross Sales (Premium subscriptions)	€ 450,000.00	€ 517,500.00	€ 595,125.00	€ 684,393.75	€ 787,052.81
Gross Sales (Downloads)	€ 50,000.00	€ 57,500.00	€ 66,125.00	€ 76,043.75	€ 87,450.31
Gross Sales (Advertisement)	€ 70,000.00	€ 84,000.00	€ 100,800.00	€ 120,960.00	€ 145,152.00
Gross sales (Data analysis)	€ 70,000.00	€ 80,500.00	€ 92,575.00	€ 106,461.25	€ 122,430.44
NET SALES	€ 640,000.00	€ 739,500.00	€ 854,625.00	€ 987,858.75	€ 1,142,085.56

COST OF SALES	2023	2024	2025	2026	2027
Production cost	€ 400,000.00	€ 180,000.00	€ 180,000.00	€ 180,000.00	€ 180,000.00
TOTAL COST OF SALES	€ 400,000.00	€ 180,000.00	€ 180,000.00	€ 180,000.00	€ 180,000.00

GROSS PROFIT (LOSS)	€ 240,000.00	€ 559,500.00	€ 674,625.00	€ 807,858.75	€ 962,085.56
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OPERATING EXPENSES	2023	2024	2025	2026	2027
SELLING					
Salaries and Wages	€ 114,000.00	€ 114,000.00	€ 114,000.00	€ 114,000.00	€ 114,000.00
Professional and Legal fees	€ 12,000.00	€ 12,000.00	€ 12,000.00	€ 12,000.00	€ 12,000.00
Marketing	€ 50,000.00	€ 50,000.00	€ 50,000.00	€ 18,750.00	€ 18,750.00
Depreciation	€ 6,290.00	€ 6,290.00	€ 6,290.00	€ 6,290.00	€ 6,290.00
Others	€ 3,000.00	€ 3,000.00	€ 3,000.00	€ 3,000.00	€ 3,000.00
TOTAL SELLING EXPENSES	€ 185,290.00	€ 185,290.00	€ 185,290.00	€ 154,040.00	€ 154,040.00

GENERAL AND ADMINISTRATION	2023	2024	2025	2026	2027
Payroll Taxes	€ 102,800.00	€ 58,800.00	€ 58,800.00	€ 58,800.00	€ 58,800.00
Insurance	€ 400.00	€ 420.00	€ 441.00	€ 463.05	€ 486.20
Interest	€ 15,000.00	€ 12,174.68	€ 9,264.60	€ 6,267.22	€ 3,179.92
TOTAL GENERAL AND ADMINISTRATION EXPE	€ 118,200.00	€ 71,394.68	€ 68,505.60	€ 65,530.27	€ 62,466.12

TOTAL OPERATING EXPENSES	€ 303,490.00	€ 256,684.68	€ 253,795.60	€ 219,570.27	€ 216,506.12
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NET INCOME BEFORE TAXES	€ (63,490.00)	€ 302,815.32	€ 420,829.40	€ 588,288.48	€ 745,579.44
Taxes on income	€ (7,936.25)	€ 37,851.91	€ 52,603.67	€ 73,536.06	€ 93,197.43
NET INCOME AFTER TAXES	€ (55,553.75)	€ 264,963.40	€ 368,225.72	€ 514,752.42	€ 652,382.01

*Tax losses will compensate future income tax payable

SOURCES OF FINANCE OF THE PROJECT (LOAN 500,000)

YEAR	INITIAL BALANCE	INSTALMENTS	CAPITAL	INTEREST(3%)	FINAL BALANCE
2022					€ 500,000.00
2023	€ 500,000.00	€ 109,177.29	€ 94,177.29	€ 15,000.00	€ 405,822.71
2024	€ 405,822.71	€ 109,177.29	€ 97,002.61	€ 12,174.68	€ 308,820.10
2025	€ 308,820.10	€ 109,177.29	€ 99,912.69	€ 9,264.60	€ 208,907.41
2026	€ 208,907.41	€ 109,177.29	€ 102,910.07	€ 6,267.22	€ 105,997.35
2027	€ 105,997.35	€ 109,177.27	€ 105,997.35	€ 3,179.92	€ (0.00)

INVESTMENT**APP DEVELOPMENT TEAM WAGES**

Project Manager	€ 50,000.00
Programmer	€ 135,000.00
Backend Developer	€ 135,000.00
Web Designer	€ 80,000.00
Marketing Team	€ 74,000.00
IT Sales	€ 40,000.00

COMPUTER EQUIPMENT

ThinkPad E14 Gen 2 (AMD)	€ 3,531.00
ThinkPad C13 Yoga Chromebook Enterpr	€ 1,539.98
Lenovo Legion 5i Gen 6 (17" Intel)	€ 6,899.94

OTHER INVESTMENT COST	€ 10,000.00
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TOTAL INVESTMENT	€ 535,970.92
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SOURCES OF FINANCE

Bank Loan	€ 500,000.00
Shareholder equity	€ 35,971.92
Total	€ 535,971.92

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