University of Dundee

Web Application for Vegan Recipes

Veganinjas.com

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In partial fulfilment of the requirements for the degree of Master of Applied Computing (MSc)

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September 11th, 2017

Executive Summary

A web based application for Vegan people was design for the aims of the MSc project.
The followed method was based on agile development, which focuses on the repeatedly test of the source code. Before the creation of a prototype a Heuristic evaluation was conducted to a similar website, in order to find the gaps that the market had and improve them in the creation of this website. Based on the findings and the personas, a prototyped was designed and tested by participants in a focus group. The participants shared their thoughts and ideas about the website. After, the analyses of the focus group, the next stage was to develop the web application called veganinjas. The main features of the web application are searching the ingredients, select the one(s) that the users want and choose the most preferable recipe.
In the end, the website was evaluated and participants answered the given questionnaire (appendix III) in order to receive a feedback that can help to future improvements, which will be discussed in the report.

Declaration

I declare that the special study described in this dissertation has been carried out and the dissertation composed by me, and that the dissertation has not been accepted in fulfilment of the requirements of any other degree or professional qualification.

Marina Korasi

_____
Signature

Certificate

I certify that Marina Korasi has satisfied the conditions of the Ordinance and Regulations and is qualified to submit this dissertation in application for the degree of Master of Science.

Dr. Alison Pease

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Signature

Acknowledgements

I would like to thank my supervisor Dr. Alison Pease for her help and guidance throughout the entire project.

I would also like to thank all the participants of my focus group and the online survey. Their help was invaluable.

Finally, I would like to thank my friends and family for their continuous and unconditional support.

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1. Introduction

Nowadays, people love to share food ideas on the internet and social media is the perfect mean for the users to share moments of their lives. Facebook, Instagram and Pinterest are the most common and the users are choosing them to post creative ideas for cooking and photos of their food.

There are many websites which provide a wide variety of recipes, but the websites which provide exclusively vegan recipes are very limited. Amongst them, there are even fewer that have the option to search for certain ingredients, which means that the choices in web applications for vegan recipes are limited. So there was a need to create a web application for vegan recipes, which offers the option to search for specific ingredients and provides information about the nutrition facts of each recipe.

1.1. Aim and Objectives of the Project

The aim of this project was to create a web application where the users can add the ingredients that they have available in their kitchen and then the application will suggest some vegan recipes with the selected ingredients, as well as their nutrition information. As far it concerned the design, it had to be simple, appealing to the user but most of all, functional.
These above aims raised the following core project objectives:

- Gather information about user needs of a vegan
- Design a medium fidelity prototype
- Develop and design a web application in PHP, using MySQL, HTML, CSS and JavaScript.
- Test the application for any dysfunctionality.

1.2. Organisation of the Report

In this report the development of online communities and their food sharing cultures is firstly considered (Section 2). Then the methodology is stated and justified (Section 3).
In the next six sections the parts of the methodology are analysed. The section 4 contains all the means that helped gathering the requirements.

Next, the initial design process is described and evaluated (section 5). Then the implementation of the product and the technologies which were used are analysed (section 6), as well as the testing results. After that, the final product is described (section 7) and evaluated (section 8).

Finally, we summarise the project and identify further directions it could take in Section 10.

2. Background

A recent study[1] has shown that sharing recipes online is a very big trend and people are using blogs and social media to exchange recipes, specially the traditional family recipes. Belasco said that sharing food forms communities, cultures and civilizations (Belasco 2008 1). Food is used to create and maintain social relationship (Mannell et al 1992, 115).

With a simple research on social media, it is observed that the growth of the facebook communities where the users share the recipes has been grown. Vegan communities are depending on that in order to spread the spirit of veganism and show that the vegan food can be very tasty and rich in quantity, but in vitamins and proteins too.

The last decade there is an increase of more than 360 percent of the vegan population in UK. In 2006 they were 150,000 but in 2016 they 542,000 vegans aged fifteen and over according to the survey which was conducted by Ipsos MORI for the Vegan Society and Vegan Life magazine

2.1. Similar Web Applications

A necessary stage for a successful product was to implement an in-depth research to investigate similar web applications for exclusively vegan recipes.

It has to be considered that the majority of the products didn't have only vegan recipes. However, some of them had extra options to filter the results by the dietary options. In addition, many of them didn't provide nutrition information of the recipes, which is very important for the vegan way of living, as healthy diet is the first goal to achieve. Finally, only a few of them had suggestions of the ingredients that were available for each recipe.

Three of these web applications will be briefly analysed bellow.

[1] Lofgren, J.M., 2013. Changing tastes in food media: a study of recipe sharing traditions in the food blogging community (Doctoral dissertation, Queensland University of Technology)

2.1.1. Sparkrecipes

Figure 1. Screenshot from sparkrecipes web application

The Figure 1 shows that this web application is not for vegan recipes only, but it has the option to select vegetarian recipes. However, it offers the user the option to users the nutrition facts and when they select the recipe that they want they can see the information about the nutrition. Also, it has the search bar for searching the recipes, but it doesn't suggest ingredients while the users are typing in the search box.

2.1.2. Vegweb

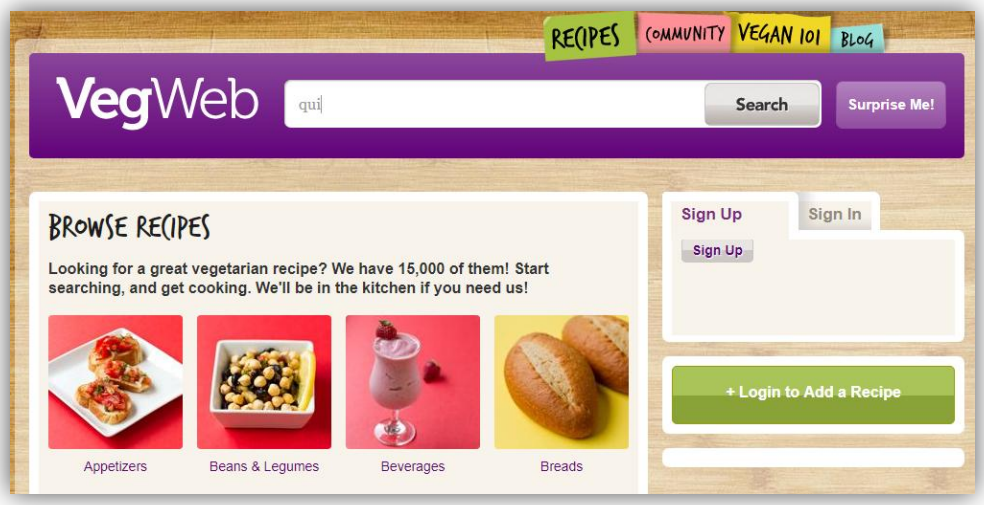

Figure 2. Screenshot from the VegWeb web application

As it can be seen from Figure 2, the website is only for vegan recipes. Furthermore, the users have the option to choose one of the many categories. Nonetheless, the recipes don't mention the nutrition facts and the search bar don't give any suggestions for the ingredients.

2.1.3. Supercook

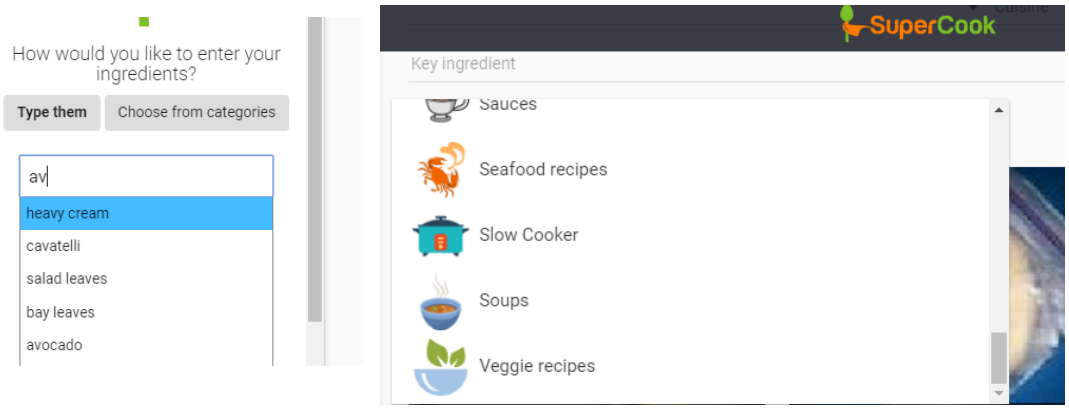

Figure 3. Screenshots from Supercook Web Application

Figure 4. Screenshots from Supercook Web Application

The Figures 3 and 4 show that this web application provides suggestion for the ingredients to the users, but it is not only for vegan recipes. However, it offers the option to choose only veggie recipes.

3. Methodology

The methodology was consisted of 6 stages: gather requirements, review online, medium fidelity prototype, evaluate it, implement it, evaluate.

3.1. Gather Requirements

In order to gather the requirements for the web application a heuristic evaluation was conducted on a similar web application.

The heuristic evaluation was based on the Jakob Nielsen's ten usability heuristics. Heuristic evaluation (Nielsen and Molich, 1990; Nielsen 1994) is a usability engineering method for finding the usability problems in a user interface design. Heuristic evaluation involves having a small set of evaluators examine the interface and judge its compliance with recognized usability principles (the "heuristics") . The main advantages of this method of evaluation are that it's very easy to do it, and at the same time it doesn't take too long to complete it. On the other hand, according to Jakob Nielsen there is a need of more than one evaluator in order to conduct the evaluation with valid results.

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the other hand, according to Jakob Nielsen there is a need of more than one evaluator in order to conduct the evaluation with valid results.

3.2. Review Online

An online review was conducted, in order to find some ideas for the personas that will be represent the future user. Two personas were created according to the main characteristics of the vegan communities on the internet. The research was focused mostly on the social media networks and more specifically on Facebook. As a member of some vegan groups it was easy to gather some main information for the personas, such as hobbies, daily routines, etc.

Personas were first introduced in 1998 by Alan Cooper[2]. Personas are fictitious characters that represent the potential users of the product. They are very beneficial for the design process, as they help the designers concentrate and understand what the users will feel when they use the product.

Furthermore, an alternative to the personas are the actors. However, the actors can be either humans or external systems. They represent the role of a specific user class that will be performed during the interaction with the product at a specific time. The main reason why the personas were chosen is that personas are more realistic; for example, personas can describe two different types of users, yet the actors are only limited to one type.

3.3. Medium Fidelity Prototype

Having gathered all the requirements above, the medium fidelity was designed
The personas and the scenarios were very important in order to have some first ideas about the web application and create a medium fidelity prototype, so it can be tested form a focus group.

The prototype was designed using Photoshop for the sketches and InVision App tool. Photoshop was used for the sketches as it is very simple but it has many features. Photoshop is a digital imaging software[3] which currently is considered the best in the market. InVision[4] is a web based prototyping tool and at the moment it's the world's leading prototyping, collaboration & workflow platform. It's easy for quick interactive prototypes and it offers the opportunity to share it by generating a link. Like any other similar tool, it is required to have the designs or sketches, in order to add them to the dashboard of the tool and start the interaction.

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[2] Cooper, A., 1999. The inmates are running the asylum:[Why high-tech products drive us crazy and how to restore the sanity](Vol. 261). Sams Indianapolis.
[3] http://www.adobe.com/uk/products/photoshopfamily.html
[4] https://www.invisionapp.com/

There are many similar products, but the biggest competitor is Marvel App, which has many good reviews too. These two apps are very similar and very easy to use. Invision was chosen because it has a more convenient layout and it has been previously used for assignment projects, so it was more familiar.

For the prototype, the green colour was chosen, as it refers to vegan and environmental topics. Green is a colour that is connected with the environment and the nature.

3.4. Evaluate it

Although the design of the prototype was based on the previous research, there was a need for some extra opinions about the decisions for the features, the layout and the colours. For that reason, a focus group conducted and the details of the process will be analysed below. Examples of the focus group questions can be found in the appendices (II).

Focus group is a small group of people who are gathered in order to discuss about a specific topic of interest. Typically it involves five to seven participants (Krueger, 1994) who express their thoughts and preferences on the topic. They provide a wider range of viewpoint because during the discussion they might agree or disagree and that can be very informative.

An alternative method would be the interviews, but it would take more time to finish approximately five interviews and the results could be less helpful. For example, if the interviewees are not talkative or if something happen during the interview that makes them feel awkward, then the interview will fail (as Lazar et al OR Lazar, Feng & Hochheiser say). On the other hand, more time with each participant could give more detailed results but that is not necessarily a positive aspect.

The results of the focus group were analysed using content analysis. It is the most common method for analysing the focus group data.

In order to ensure that the evaluation results would be credible and useful, the data were analysed systematically. Although there are various definitions of content analysis, Stemler (2001) stated that it is a “systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding”. Also, Holsti (1969) said that content analysis is “any technique for making inferences by objectively and systematically identifying specified characteristics of messages” (Lazar, Feng & Hochheiser).

First, the audio file was transformed into written text format and organised into categories, along with the notes that were kept during the session. Then, the text was read again, in order to double check that all the important data are described.

3.5. Implement it

Two are the most popular methodologies for the web development; the Agile method and the Waterfall (Plan Driven). Both of them were studied in order to choose the most appropriate for the project. In a few words, Waterfall is a linear approach for the development, which means that there is a specific order of the procedure that they have to be strictly followed.

The customer will agree with the developer on what will be delivered early in the development. That means that the developer cannot change anything from the initial plan. On the other hand, Agile methodology is concentrated more to what the customer needs. It has different phases which are called “sprints”, each one of them has a specific duration (usually in weeks).

Each sprint has a list of deliverables which are planned at the start of the sprint. At the time when the deliverables are ready they are given to the project team who test it in order to verify that they work properly, if something don’t work then it will be re-developed.

The methodology that was chosen was based on the Agile method, in order to have more flexibility during the development of the product.

3.6. Evaluate

The final evaluation of the web application was conducted using an online questionnaire targeted mostly to vegan users. The aim of the questions was to the questionnaire (see appendix III) was first revised and approved by the ethical committee of the University of Dundee. Then, it was transferred to an online survey tool – SurveyMonkey[5] – in order to have the appropriate layout and administered to the participants. The questionnaire was open to participants for one week.

Moreover, the Nasa TLX questionnaire (see appendix IV) was used. The Nasa TLX was not targeted to vegans, as it was only used to measure the effort that the users put during the tasks that they had to complete.

3.7. Time Management Plan

The initial time management plan was very simple and included a table with two columns, one for the tasks and one for the duration of each task.
Some of the tasks were supposed to happen at the same time and that is noted next to the respective tasks.

[5] https://www.surveymonkey.com/mp/aboutus/

The table is the one below:

Tasks	Duration
• Research about similar applications	2 weeks
• Prepare ethical approval	3 weeks
• Do wireframes for the web application • Create the medium fidelity prototype	1 week
• Wait for the approval	2 weeks (approx.)

• Focus group planning
• Conduct focus group
  ○ Consent forms
  ○ Ask them about my idea and show them the wireframes
	2 weeks

• Start self-learning (at the same time with the previous)
  ○ Watch tutorials for extra PHP knowledge
  ○ Design the user interface using HTML and CSS
	2 weeks

• Implement using PHP (Start development) (at the same time with the previous) ○ Test code (Agile method: develop, test and repeat).	2 weeks
➢ Continue development in PHP and improving the UI ○ Test the code	1 week
➢ Continue development ○ Testing and Finish development	2 weeks
➢ Online survey and Nasa TLX for the final version of the product	1 week
➢ Write the Report	1.5 weeks

Figure 5. Time Management Plan - Table

4. Heuristic Evaluation on another web application

The name of the web application that was chosen is MyFridgeFood. It was chosen for two reasons. Firstly, it's not developed using a content management system[6], which means that it has been developed using custom code. Secondly, the home page includes all the ingredients and allows the users to select the ingredients that they want and this feature was really similar to

[6] http://searchcontentmanagement.techtarget.com/definition/content-management-system-CMS

the initial idea about the design of the web application for vegan recipes. However, MyFridgeFood doesn't contain only vegan recipes.

The heuristic evaluation was conducted in order to identify the most significant usability problems on that web application and that's why it was performed by two people, one user experience designer and one web developer; both of them have knowledge in the usability heuristics.

The ten heuristics were used, focusing on the functionalities of the application's features, such as search, select the ingredients and choose recipe.

The results were used as an example of what should be avoided or not, during the decision-making period for the initial design. These are summarised in the following table:

#	Page that was found	Web app screen	Number of the Heuristic	Reason(s) for negative feedback	Severity Rating
1	Homepage	See figure 6 below	H1	No title on the homepage to identify the location and no home menu item	2
2	Recipe Page	See figure 7 below	H1	Wrong Breadcrumbs	3
3	Homepage	See figure 8 below	H4	The font size changes and the button don't use the correct name eg. Quick ingredients List for the Quick Kitchen Layout	2
4	Search Feature	See figure 9 below	H7	No advanced search or filter for certain dietary preferences	3
5	Every Page	See figure 9 below	H8	The background is confusing, it's not full width, the "share" buttons are unnecessary on some pages	1
6	Every Page	See figure 10 below	H8	Too many adverts for this simple website	1
7	Login	See figure 11 below	H9	Same message either if it's wrong pass or email	2
8	Search feature	See figure 12 below	H10	No information about the input type (what it accepts)	2
9	Missing Pages		H10	No "contact us" page or FAQ (if the users have a question)	3

The results show that there are not any critical violations of the heuristics, yet there are some clear bad design techniques. In general, the code of MyFridgeFood indicates that some potential error inputs have been considered and the functionality of most of the features is good.

On the other hand, the design of this web application is not good and all these adverts, combined with the repeated background are very tiring for the users.

4.1. Screenshots from the Web Application

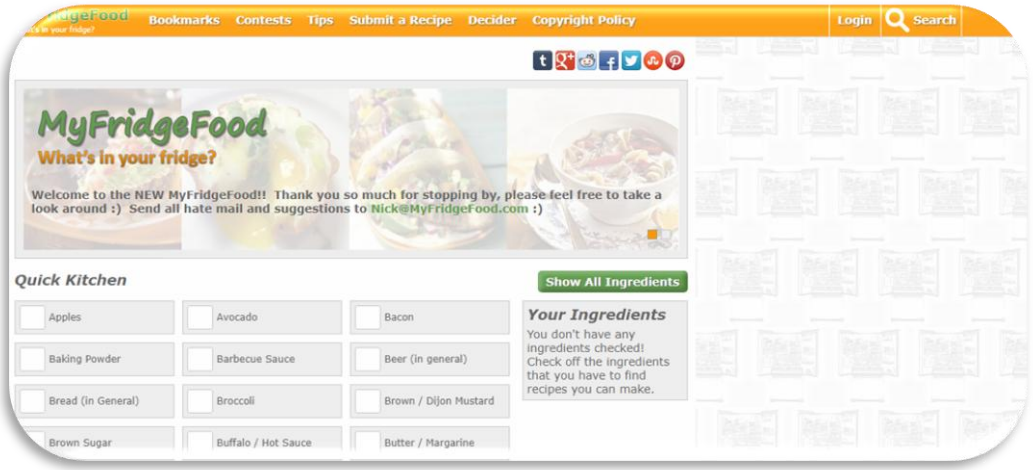


Figure 6. HE on MyFridgeFood - Homepage

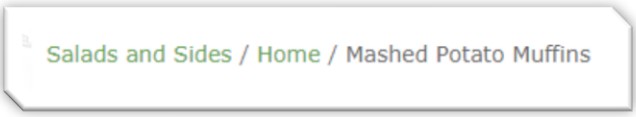


Figure 7. HE on MyFridgeFood - Wrong breadcrumbs

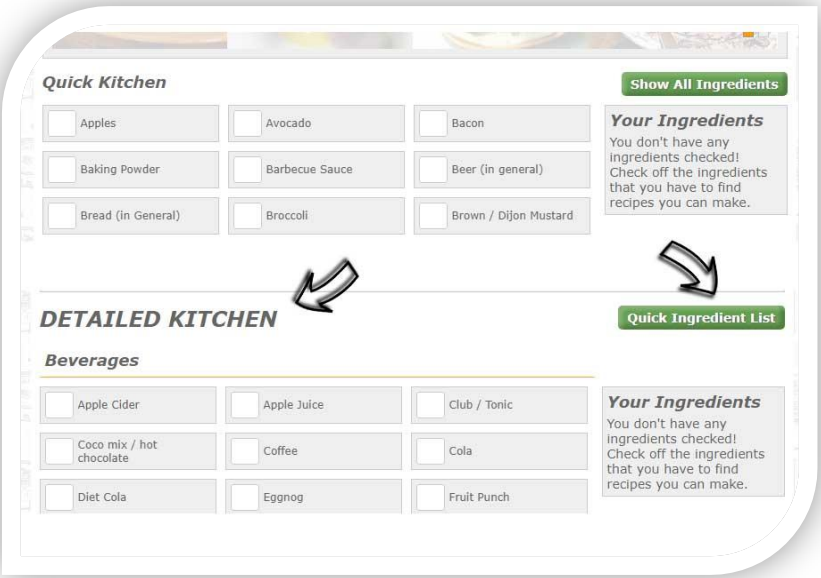


Figure 8. HE on MyFridgeFood – Consistency

Figure 9. HE on MyFridgeFood – Search

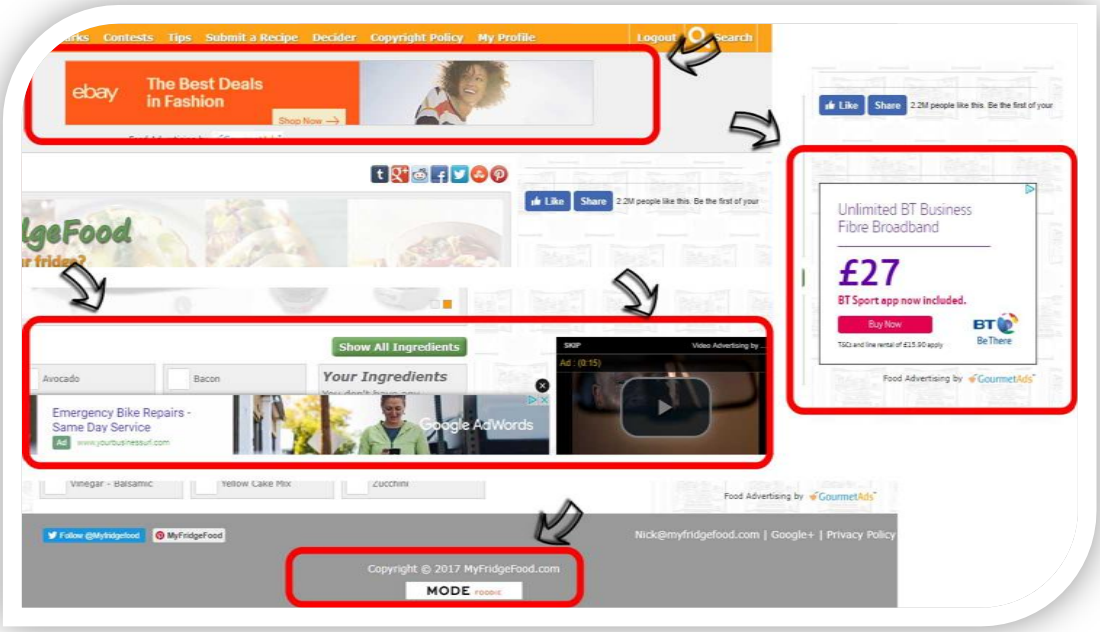


Figure 10. HE on MyFridgeFood - Ads

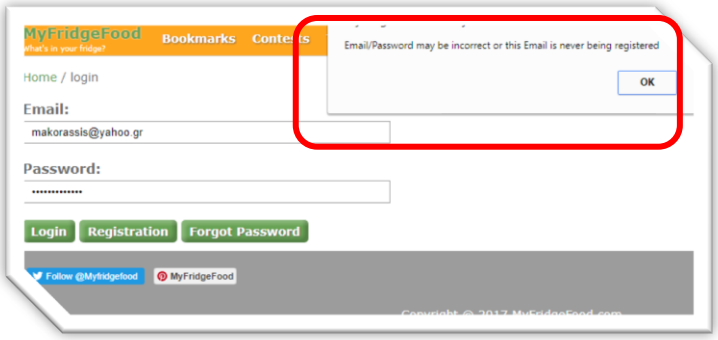


Figure 11. HE on MyFridgeFood - Login wrong details

4.2. Personas and scenarios

Scenarios are narratives which describe a real-world example of the user's interaction with the product. They are very important for the design of the user interface and they rely on the personas.

1st Persona

Fictional Name: Jess Doe
Age: 26
Status: Single
Job Title: A Student of Environmental Studies

Goals:

- Find quick vegan recipes to cook as she has not much free time.
- As a vegan, she cares about every living being, but also about her health, so she Is looking for the nutrition information

Technology: Uses her laptop every day for her school projects and for Facebook and Twitter, because she is an active member on many groups for vegans.

Background: Jess is a student of Environmental studies in London. She is a vegan the last three years and she is an activist for the animal rights. She spends a lot of time studying for her degree and being in many events. Also, she uses the internet to get some ideas about her meals. But, it's difficult for her to find web applications that have both exclusively vegan recipes and their nutrition information. However, she finds most of the recipes on Facebook, where other members are posting the recipes that they like.

Motivations:

- Simple design and easy to use
- Nutrition information on recipes
- Save favourite recipes
- A variety of healthy snacks for the uni

Frustrations:

- Wide variety of recipes without nutrition info, so extra time checking the nutrition
- She wants to use web applications that have only vegan recipes

Scenario

Jess searched online to find a simple web application to use while she is at her home in order to find something healthy to make. First of all, she want only vegan recipes. Also, she usually has not a wide variety of ingredients in her house, so it's convenient for her to search a nutritional recipe according to those ingredients. But she doesn't want something complicated because she doesn't want to spend a lot of time on this; also she wants to make her own lunch for her uni.

2nd Persona

Fictional Name: Dimis Papadakis
Age: 32
Status: In a relationship
Job Title: Musician

Goals:

- He wants to find a website which provides a variety of vegan recipes
- He wants to support small companies that promote the vegan way of living, so he doesn't want to visit websites that are not 100% vegan.

Technology: Uses his desktop for his work, very familiar with technology trends and he is always up to date on the latest technology.

Background: Dimis is from Greece, but lives with his cat and dog in Edinburgh. He is a musician, so he travels a lot. He loves cooking and he also loves to try new tastes very often. He can spend as many hours as it will take in order for him to make the perfect meal.

Motivations:

- Pretty design
- Creative recipes
- Photos of the respective meals
- Detailed information about each recipe

Frustrations:

- Not many web applications that are only for vegans
- Some of the websites are very unattractive

Scenario

Dimis is back from a business trip and he wants to make a dinner for his partner. He just went to the supermarket, so he has many ingredients but no idea what to do with them. He wants to find something that will introduce his partner to the alternative vegan Greek cuisine.

4.3. Requirements

The specification of the project was to build a system to help users find vegan recipes with their nutrition.

1. The system should be a web application.
2. The Graphical User Interface (GUI) should be easy to use.
3. The application should provide quick responses with a few or no user errors.
4. The application must meet the standards of accessibility standards from Web Content Accessibility Guidelines (WCAG) 2.0

5. The web application should be accessible to search engine spiders
6. The application should be coded with good on-page search engine optimisation.
7. A user should be able to register a new account with three options: email, Google+, Facebook.
8. Given that a user has registered, then the user should be able to login using the email and password, Facebook.
9. Given that the user has registered, then the user should be able to retrieve their password.
10. The application must have a database to store the details of the users and the details of the recipes.
11. The application should be hosted on a physical server.

5. Initial Ideas about the Design of the web application

5.1. Medium Fidelity Prototype

A medium fidelity prototype is a prototype that is not so functional, but it can represent the interactions of the system with the users. It contains most of the features that the final product will have, such as login page and description of the search process.[7]
The main features that were presented in the prototype were a result of the personas and the research from similar websites. Firstly, the design is very simple, and the users can add the ingredients they want so that the system will show the available recipes. Secondly, apart from the search button there is a “Surprise Me!” button, which will show a random recipe with the respective ingredients, for the people who like challenging.

[7] The link for the prototype that was demonstrated: https://invis.io/J2CLUZBKS

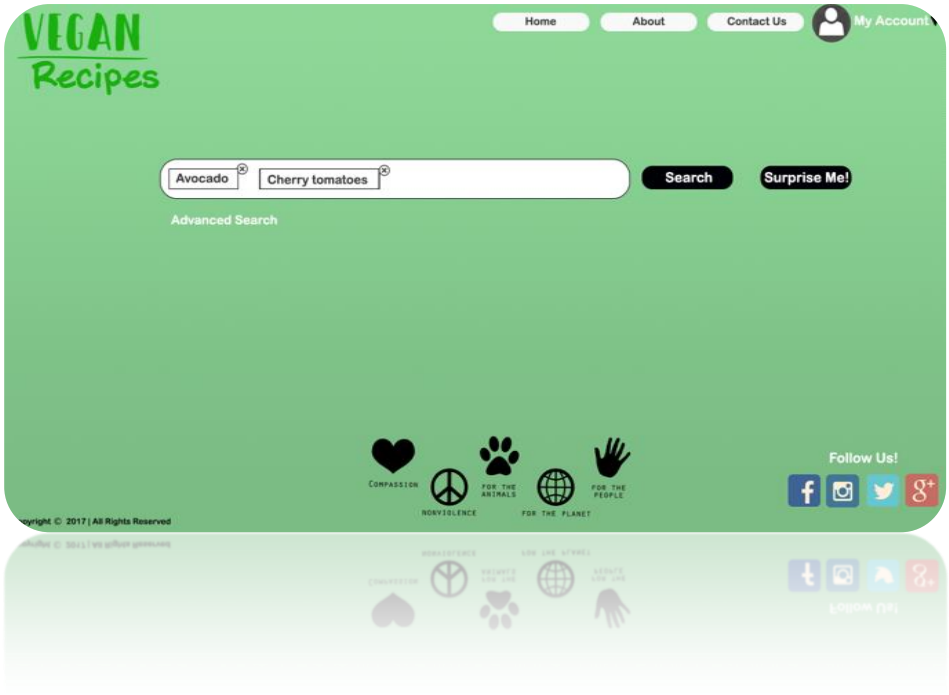


Figure 12. Medium Fidelity Prototype - Home Page

As it can be seen from the Figure 12, under the search bar there is an “Advanced Search” option which would have the quick recipes option for those who are in hurry.

The users are able to login using either their email or Facebook (Figure 13)

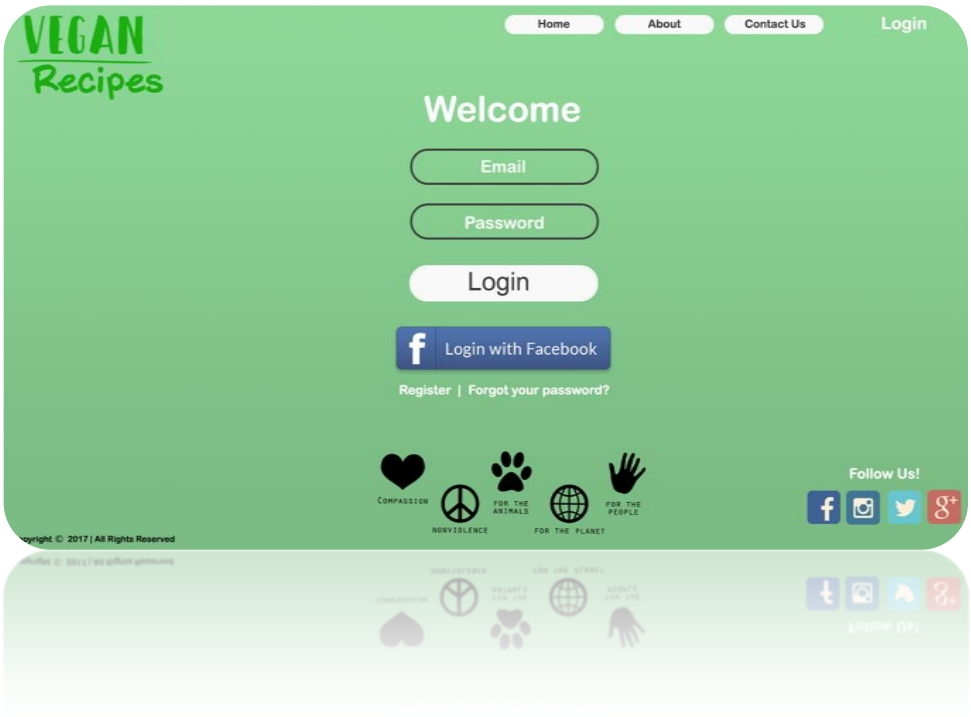


Figure 13. Medium Fidelity Prototype - Register Page

5.2. Evaluation of the Prototype

5.2.1. Conduct a Focus Group to Evaluate the Prototype

The focus group conducted in the University of Dundee, it had five participants who were Computing students. The session was voice recorded, the moderator had some questions prepared and the plan was to last one hour. Before the focus group was started, the participants read the information sheets and signed the consent forms. Afterwards, the prototype was given to the participants and they had a few minutes to interact with it. Then the discussion about their opinions for the prototype started, with the moderator asking questions. The questions were focused on the appearance of the prototype, such as the colours that were chosen, the main menu and the buttons. Moreover, the features were discussed and some were suggested. It lasted one hour and the results will be analysed below.

5.2.2. Summarised Results

- Layout and colours

As far as it concerns the layout, participants suggested some changes. First, they recommended that a search icon should be added in the search button. Furthermore, header and footer should have the same background colour, but the main body's background should be lighter. Regarding the results page (Figure 14), participants said that the results should be less detailed, in case they are more than two, the result will not be good. They suggested keeping only the photos, in grid style and when the users click on them, more information will appear, as well as the button to see the recipe. Also, referring to the recipes page (Figure15) all the participants agreed that the main photo of the recipe should be full-width and on the top of the main body. Then it should be the information about the cooking time, the ingredients and the instruction. Moreover, they suggested adding the nutrition information as a separate table next to the recipe.

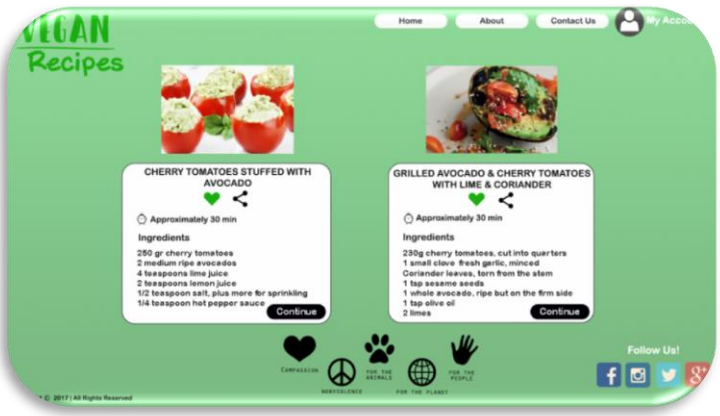


Figure 14. Medium Fidelity Prototype - Results Page

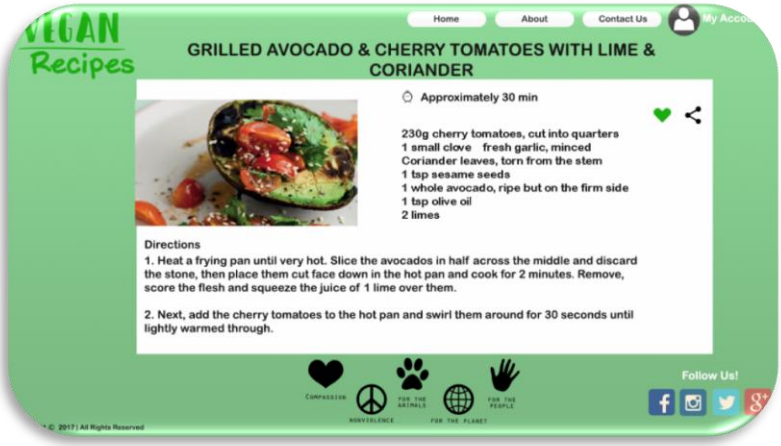


Figure 15. Medium Fidelity Prototype - Recipe Page

- Recommendations for extra features

The participants were asked if they have any recommendations for extra features. They suggested adding a rating system so that the users can see the “most popular” recipes. Participants also said that it would be a good idea to add a “Save it for later” button, in order to save the recipes that they liked but they did not have the time to cook them. In addition, they recommended adding the portion size next to the cooking time and a “friendly print” icon next to the share icon. Furthermore, participants suggested some extra features for the advanced search. It has to be noted that the advanced search was not initially designed because the features would be rely on the participants’ recommendations. They suggested adding “filters” in order for the users to have some extra options for the search. These filters included:

- Quick recipes
- Specific category
- Exclusion of some ingredients either because they have allergy or because they don’t like them.

When the data analysis from the evaluation of the initial design was finished all of the information was taken into consideration in order to proceed to the main design.

6. Development and Final Design

6.1. Agile Development

The Agile methodology is a team-based approach to development, for this reason, two people who have knowledge in web development were chosen at the beginning of the development of the product. These participants were testing a part of the application that was ready in every phase.

It has to be mentioned that the development of this project was based on this methodology. However, it was not feasible to follow all the principles of this technique because the team was consisted of three people, of which the one was both the designer and the developer. This method is centred on the customer, but for the purpose of this project and because the customer was not an existing person, the main principles were followed but instead of the customer, the potential customer model was used.

The first two steps[8] of the Agile development approach have been completed during the aforementioned phases of the project. These were for the understanding the aim and the requirements of the design. After ensuring that they have been understood, the sprints have to be specified. Some additional sprints were conducted because the testing showed that there were some additional features needed to be added.

6.2. Technology Used

The web application is hosted in an Apache Server[9], which is the most widely used web server software and it is fast, reliable, and secure. The Apache server is managed by CPanel[10] which is a web based hosting control panel and gives users a graphical interface in order to control their web hosting account.

At the beginning of this project, it was decided that the web application will be built in PHP, which is mainly focused on server-side scripting. That means that it contains many different aspects where it can be used; some of them are:

- Collect data
- Generate dynamic page content
- Send and receive cookies[11]

[8] Adopting Agile Development. (2015). 1st ed. [ebook] Segue Technologies, Inc., pp.12-23. Available at: https://www.seguetech.com/wp-content/uploads/2015/01/Agile_ebook_Segue.pdf [Accessed 9 Sep. 2017].
[9] https://documentation.cpanel.net/display/EA/Apache
[10] http://www.wpbeginner.com/glossary/cpanel/
[11] http://php.net/manual/en/intro-whatcando.php

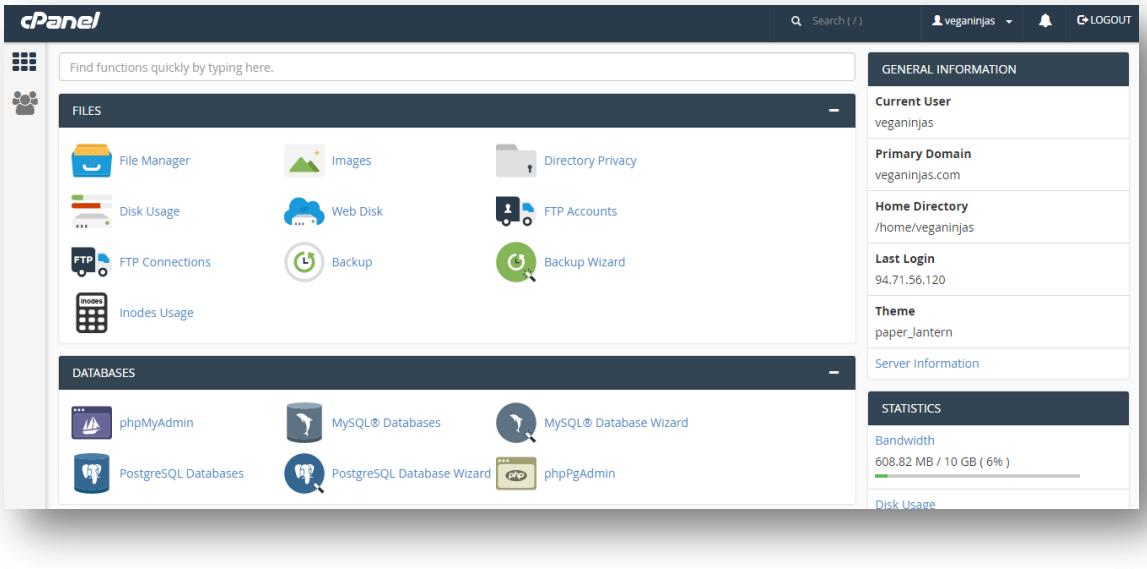


Figure 16. Cpanel Interface

It was chosen because it's a very popular language; it is open source and provides a wide variety of features.

In order to create the database and connect it with the web application, the MySQL was used. MySQL is an open source relational database management system (RDBMS) based on Structured Query Language (SQL) provided by Oracle[12].
For the front-end web development HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets) were used, which are two of the core technologies that are used for designing websites[13]. In order to achieve a responsive design, Materialize CSS Framework was used. Materialize Framework is designed by Google and combines all the principles of successful design[14]. Also, JavaScript was used to add some dynamic features in HTML. JavaScript is the programming language for HTML. Finally, jQuery which is a JavaScript library was used in order to extend JavaScript's features on the web application[15].

6.3. Implementation and Testing

As it has been mentioned in the previous section, the development process was based on the Agile method and two participants were the testers.

- The development started with the search feature. In order to put the selected ingredients to separated boxes a JavaScript Code was used, base on two different scripts[16] which were found on Github. This method of searching is called "tokens". The Figure 17 indicates the way the system connects with the database in order to

[12] http://searchoracle.techtarget.com/definition/MySQL
[13] https://www.w3.org/standards/webdesign/htmlcss
[14] http://materializecss.com/about.html
[15] https://www.w3schools.com/jquery/jquery_intro.asp
[16] https://github.com/firstandthird/tokens/ and https://github.com/jgallen23/fidel

call a MySQL query which takes all the ingredients from the database and stores them to an array in order to display them as suggestions while the users are typing the ingredient in the search bar.

```
// Create connection
$conn = new mysqli($DB_HOST, $DB_USER, $DB_PASS, $DB_NAME);

// Check connection and display error message if there's an error
if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}

//SQL query
$sql = "SELECT item FROM ingredients ORDER BY item ASC;";

//execute the SQL query
$result = $conn->query($sql);


//if there are results it means that we are connected
//to the database and we are about to fetch the ingredients
if ($result->num_rows > 0) {

    //define variable
    $ingredients = "";

    // output data of each row
    while($row = $result->fetch_assoc()) {
        //set each ingredient like so: avocado, almonds, cashews, etc.
        //the last ingredient will also have a comma at the end but
        //it will be trimmed when it's time
        $ingredients = $ingredients . "'" . $row["item"]. "',";
    }

} else {

    //something has gone bad
    echo "Oops! It seems that we can't connect to the database. Please refresh your browser and try again!";
}

//close the connection with the database
$conn->close();


//end MySQL connection
?>

<!-- start tokens -->

<div class="row" style="margin-top:5%">
    <form id="searchIngr" class="col s12" method="post">
        <div class="row">
            <div class="col s12 m12 l8 center">
                <label for="tokens">Start typing the ingredients and select from the list using the mouse, spacebar or right arrow:</label>
            </div>
        </div>
        <div class="row">
            <div class="col s12">
```

Figure 17. Development - Search

When this part was finished, it was given to the participants to test it. At first, they couldn't find a recipe when they were selecting more than one ingredient. The reason that it was happening was because the script for the tokens accepts the values with coma (,) between them. Therefore, as it can be seen from the Figure, a coma was added in the loop and then it was working as it supposed to.

- After that, the development of the results page started. In order to see the results for the selected ingredients, a POST session variable takes all the ingredients and stores them to an array.

```php
//get the ingredients from the previous form
$ingredients = $_POST["ingredients"];

//we use explode in order to split all the elements from the previous search query on home page
$ingredientArray = explode(",", $ingredients);

//number of ingredients
$arrayNum=0;

//initialise $arrayIng which will store and format appropriately the ingredients
$arrayIng="";

//we use a loop to include all ingredients to our query
  foreach($ingredientArray as $array)
  {
      //format the variable $array and get it ready for the SQL query.
      //trim($array) has been used to remove all spaces left from the $array.
      $arrayIng = $arrayIng . "'" . trim($array) . "',";

      //will be used on the SQL query for HAVING COUNT(*)
      $arrayNum++;
  }

 //if it's normal search
 if (empty($_POST["excingredients"]) && empty($_POST["cravingfor"]) && empty($_POST["gluten"]) && empty($_POST["soya"]) &&  empty($_POST["nuts"]) && empty($_POST["quick"]))
 {

     //the SQL query to find the respective recipes as well as their categories.
     //I used rtrim to remover the last comma character from $arrayIng
     $sql_query = "SELECT * FROM recipes, recipes_has_ingredients, ingredients, categories WHERE recipes.categories_id = categories.c_id AND
     recipes_has_ingredients.ingredients_id = ingredients.i_id AND recipes.r_id = recipes_has_ingredients.recipes_id AND ingredients.item IN (". rtrim($arrayIng,",") .") GROUP
     BY recipes_id HAVING COUNT(*) =" . $arrayNum . ";";

 } else

 {
    //the user came from the advanced_search.php

    //exclude ingredients section//

    //initialise $excingredients
    $excingredients = "";

    //get the excluded ingredients from the previous form
    $excingredients = $_POST["excingredients"];

    //we use explode in order to split all the elements from the previous search query on home page
    $excingredientArray = explode(",", $excingredients);

    //initialise $arrayIng which will store and format appropriately the ingredients
    $excarrayIng="";

    //we use a loop to include all ingredients to our query
    foreach($excingredientArray as $excarray)
```

Figure 18. Development - Results Page

When this part was finished it was given to the participants to test it. At that point the users couldn't see any results. That was because of the coma which was added before. In the loop the "trim" function of the PHP is used, in order to get rid of the coma and store each ingredient to the array (see Figure 18). Then the MySQL query is called and the user can see the results.

- After that, the search feature was extended, in order to have the extra options that were discussed on the focus group (see section 5.2.1.). The extended version is called "advanced search". Basically, the code of this page is a series of if-else statements (see Figure 19), in order to control the alternative choices that the users can have. The options of the advanced search (see Figure 20) were based on the recommendations from the focus group (section 5.2.2.).

```
//initial query
$sql_query = "SELECT * FROM recipes, recipes_has_ingredients, ingredients, categories WHERE recipes.categories_id = categories.c_id AND
recipes_has_ingredients.ingredients_id = ingredients.i_id AND recipes.r_id = recipes_has_ingredients.recipes_id AND ingredients.item IN (". rtrim($arrayIng,",") .")";

//all query additions from now on must start with a space character
//in order for the query to work properly

//if the user has entered excluded ingredients
if ($excarrayIng !== null){
    $sql_query = $sql_query . " AND ingredients.item NOT IN (" . rtrim($excarrayIng,",") . ")";
}

//if the user is craving for something :)
if ($cravingfor !== null){
    $sql_query = $sql_query . " AND categories.description = '" . $cravingfor . "'";
}

//if the user doesn't want gluten
if ($gluten !== null){
    $sql_query = $sql_query . " AND recipes.gluten NOT IN (1)";
}

//check if the user doesn't want nuts and/or soya
if ($nuts !== null){

    //case where the user doesn't want nuts or soya
    if($soya !== null){

        $sql_query = $sql_query . " AND ingredients.type NOT IN ('soya','nuts')";

    //case where the user doesn't want nuts
    } else {

        $sql_query = $sql_query . " AND ingredients.type NOT IN ('nuts')";

    }

//case where the user doesn't want soya
} else {

    $sql_query = $sql_query . " AND ingredients.type NOT IN ('soya')";

}

//check if the user wants a quick recipe (<40 mins)
if ($quick !== null){

    $sql_query = $sql_query . " AND recipes.cookingTime < 40";

}

//finalisation of the query
$sql_query = $sql_query . " GROUP BY recipes_id HAVING COUNT(*) =" . $arrayNum . ";";
```

Figure 19. Development - Advanced Search

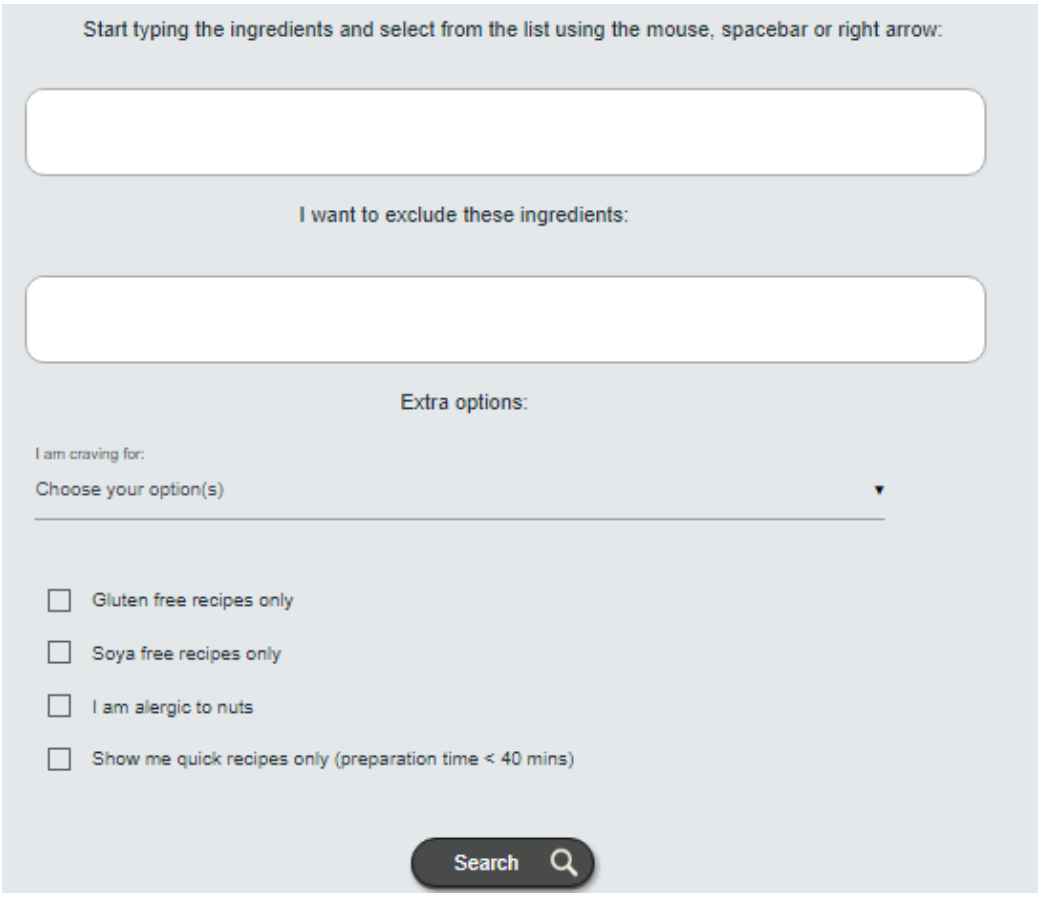


Figure 20. Advanced Search Options

When the development of this part was finished, the participants test it to confirm that everything was working properly.

- The next pages that were developed were the login and register pages. They can login/register with two different ways:
  - Email: they add their email and the password that they want
  - Facebook or Google+: they simply click on the button and they authorise the web application to use their social profile information (name, email, profile picture).

Recaptcha verification system was added on both forms in order to avoid spam mail. For each page there are many lines of code to avoid wrong inputs form the users. For example, if the users put wrong credentials on the login page or wrong input types in the register form. The Configuration Class was used in order to configure the email credentials, the Recaptcha credentials and the social networks credentials.

All the features were tested by the participants and the code was working correctly.

- After this part, the development of “myfavourites.php” started. The idea of “My Favourites” was a result of the online research that was conducted to find similar products. When the users select a recipe to add to their favourite, the system checks if the users are logged in or not and if they are not logged-in a message appears to inform them that they have to login first. In order to store the recipe to the user’s favourites the MySQL REPLACE INTO[17] is used (see Figure 21).

```
    //database manipulation

    //get the id parameter on the URL
    $recipeID = $_GET['id'];


    //if id is left empty, show error message
    if (empty($recipeID)) {
        //redirect the user back with an error message (default recipe not found)
        header("Location: " . Config::SITEURL . "recipe.php?id=");
        die();

    //check if there are no results from the database (meaning someone tried manually an invalid id parameter)
    //and if so, display the error message
    } else {

        //get the file containing the database connection details
        require_once 'includes/quickdbconnect.php';

        try {
            //Create connection
            $conn = new mysqli($DB_HOST, $DB_USER, $DB_PASS, $DB_NAME);
            // Check connection and display error message if there's an error
            if ($conn->connect_error) {
                //die("Connection failed: " . $conn->connect_error);
                header("Location: " . Config::SITEURL . "recipe.php?id=" . $recipeID . "&msg=noadded");
                die();
            }

            //My insert query with a twist. REPLACE is being used so that the system first checks if it is already listed and if not, it proceeds on the
            //INSERT. This way I am preventing double records.
            $sql_query = "REPLACE INTO users_fav_recipes SET users_id = " . $_SESSION['user_id'] . ", recipes_id = " . $recipeID . ";";


            //execute the SQL query
            $result = $conn->query($sql_query);

            //redirect the user back with a success message
            header("Location: " . Config::SITEURL . "recipe.php?id=" . $recipeID . "&msg=okadded");
            die();
        } catch (Exception $e) {
            error_log($e->getMessage());
            //redirect the user back with an error message
            header("Location: " . Config::SITEURL . "recipe.php?id=" . $recipeID . "&msg=noadded");
            die();
        }

    }

// display footer
include('includes/footer.php');

?>
```

Figure 21. Development - My Favourites

[17] REPLACE INTO works exactly like INSERT, except that if an old row in the table has the same value as a new row for a PRIMARY KEY or a UNIQUE index, the old row is deleted before the new row is inserted (https://dev.mysql.com/doc/refman/5.7/en/replace.html)

The “add to my favourites” feature was tested by the participants and the code was fixed where it was necessary.

- The last part of developing was consisted of the custom back-end environment. There are two different dashboards, one for the administrators and one for the users. Both of them have the same layout and at the beginning of the code the system checks whether the users have administrators / managers rights or not. If they are administrators they can see both dashboards, whereas if they are managers they can only see the recipes dashboard. Two new classes were created, one for the users and one for the recipes. Each one of them contains all the different functions that indicate the administrators’ options when they visit the respective dashboard. The Figure 22 shows a sample of the recipes class, where the administrator can see all the recipes and delete each one of them. At the top of each dashboard there is a list of boxes which provide information about the number of the recipes or the users respectively.

After the last part was finished, the testers checked all the features of the aforementioned dashboard there was an issue with the email provider, so it was fixed and the product was almost ready for the evaluation. As a web application it needed to be tested according to the accessibility guidelines (WCAG).

```php
/**
* Get all ingredients
*/
public static function getIngredients()
{
    $ingredients = "";

    try{

        $dbconn = Database::getInstance();

        $ingredients = $dbconn->query("SELECT item FROM ingredients")->fetchColumn(0);

        } catch (PDOException $e) {
            error_log($e->getMessage());
        }

    return $ingredients;

}



/**
* Delete the recipe.
* Accepts as a parameter the id of the recipe that we want to delete.
*
* @return void
*/

public function delete($id)
{
    $stmt = "";
    try {
    $dbconn = Database::getInstance();
    $stmt = $dbconn->prepare("DELETE FROM recipes WHERE r_id = " . $id);
    $stmt->execute();
    return true;

    } catch (PDOException $exception) {

      // Log the detailed exception
      error_log($exception->getMessage());
    }
}


/*count Recipes */
public static function countRecipes()
{
  try {
        $count = array();
        $dbconn = Database::getInstance();

        $count['totalRec'] = $dbconn->query("SELECT COUNT(*) FROM recipes")->fetchColumn(0);
        $count['totalIng'] = $dbconn->query("SELECT COUNT(*) FROM ingredients")->fetchColumn(0);
        $count['totalCat'] = $dbconn->query("SELECT COUNT(*) FROM categories")->fetchColumn(0);

        return $count;

  } catch (PDOException $e) {
      error_log($e->getMessage());
      return false;
  }
}
```

Figure 22. Development - Recipes Class

6.3.1. WCAG

The AChecker (see Figure 27)

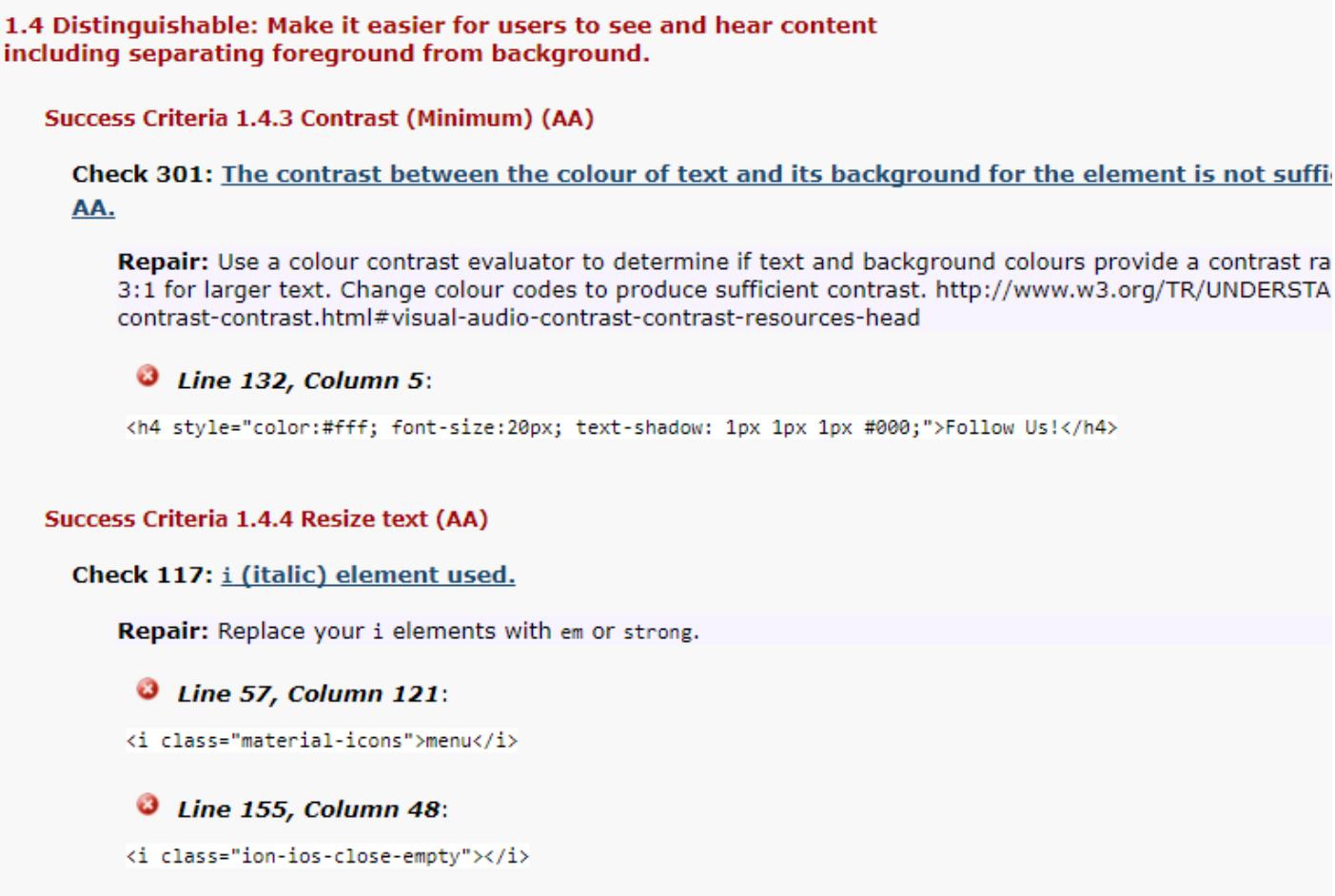


Figure 23. WCAG Testing - AChecker

The tool indicated the above “known” problems. The first recommended changing the colour of the “Follow Us!” text on the bottom of the web application; hence it was changed. However, the two last suggestions are not correct, since the <i class=” ”>...</i> is a class that the Materialize CSS framework is using and it’s not an element defined in italics font.

7. Final Product

The users can have access to the final product using the following link: veganinjas.com.

The home page is the page where the users can search for the ingredient(s) that they want. As it can be seen from the Figure 24, when they start typing, a list of the ingredients will be displayed in order to avoid spelling mistakes.

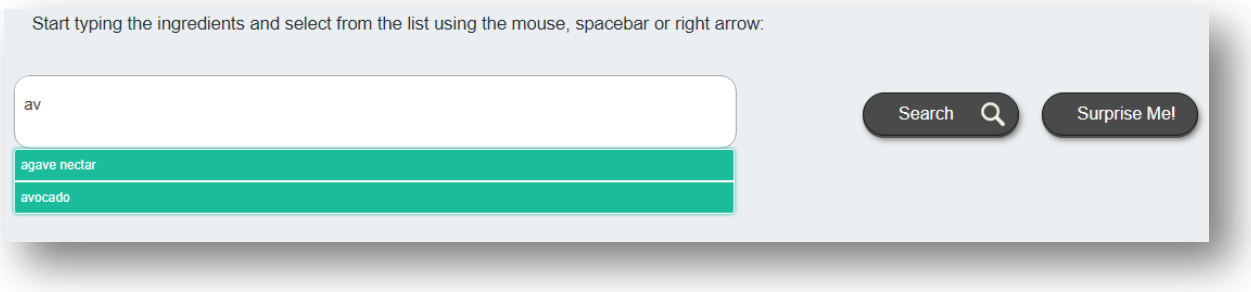


Figure 24. Final Product - Search

After the users select the ingredient(s) that they want, they can choose either to search for a recipe or select the “Surprise Me!” button where a random recipe with the chosen ingredients will be displayed.

If they choose to search for a recipe then a list of the available recipes will be displayed in a grid format (see Figure 25) and if the users select the button they can see more details or go to the recipe’s page.

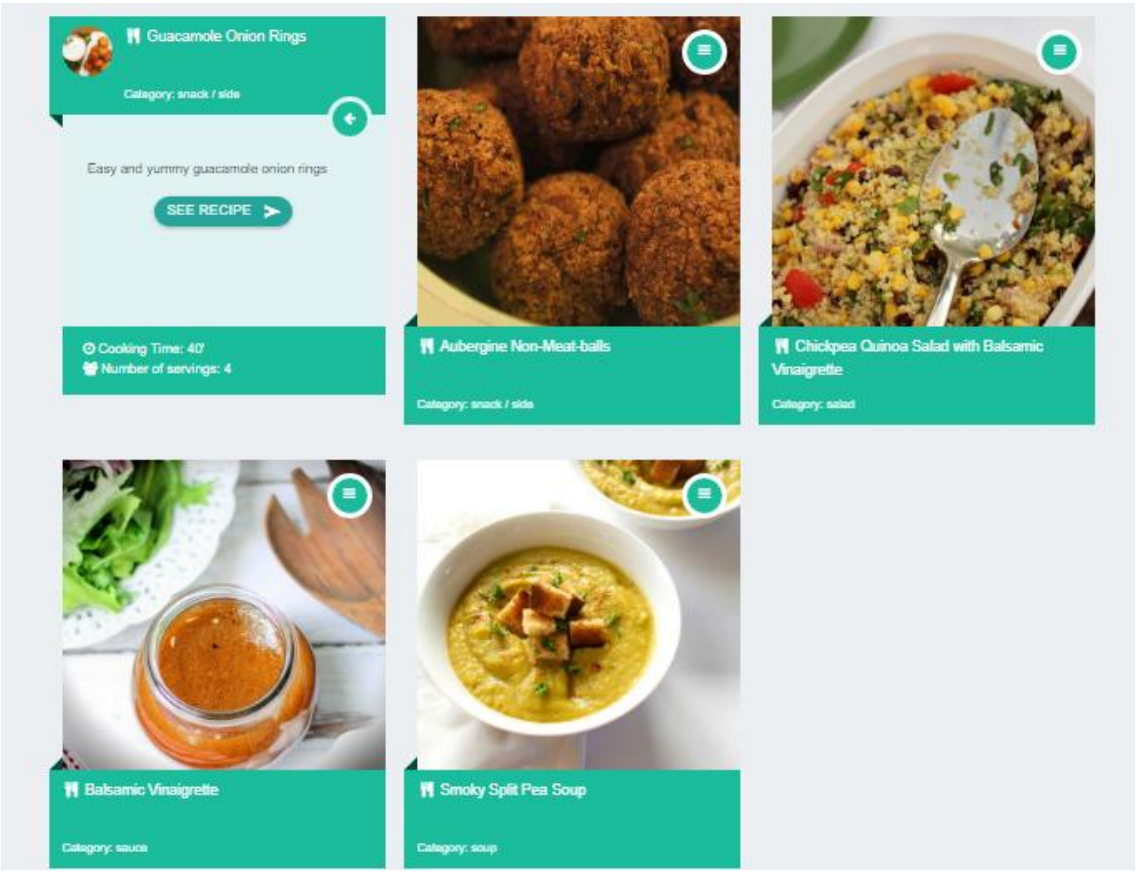


Figure 25. Final Product - Results

Either way, a recipe page will be displayed (see Figure 26) and the users can see the nutrition information of the recipe, as long with the ingredients, instruction and some extra information. Also, they can share the recipe either on social media or send it by email.

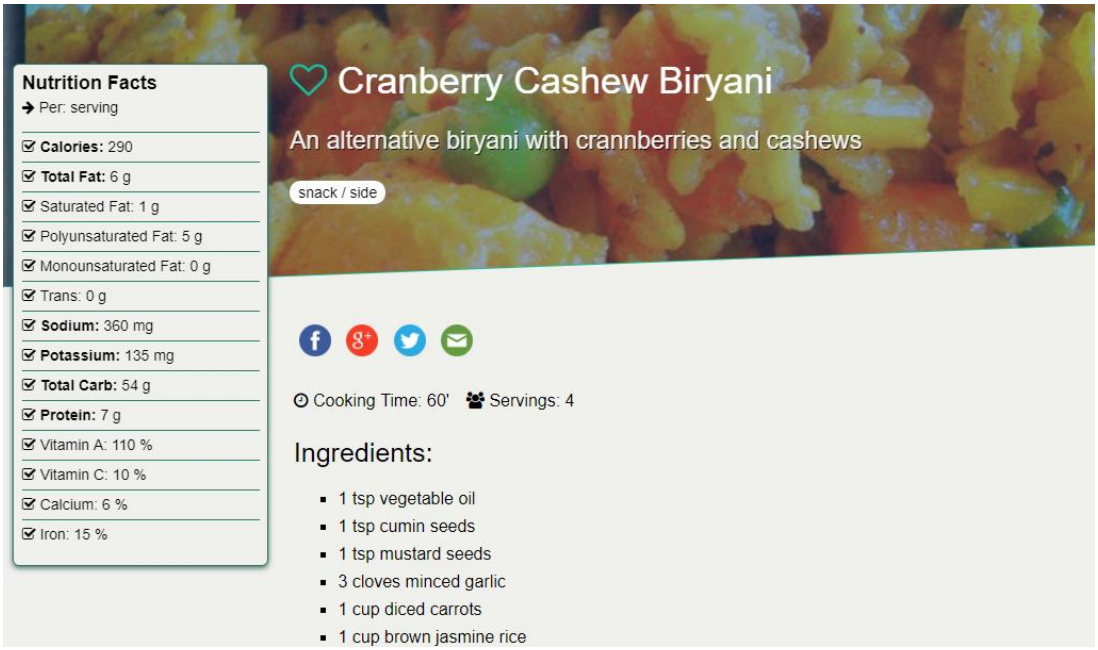


Figure 26. Final Product - Recipe's Page

There are three types of users:

- ❖ Active Users (simple users)

The users will be able to login/register as simple users, in order to add a recipe to their profile. Then, they can see their favourite recipes on the favourites.php.

- ❖ Subscribers

Subscribers are the users that can receive email from the administrators of the web application. These are mostly for marketing reasons.

- ❖ Managers

The managers are the users who have access to the backend environment and they can view the list of the recipes and send email to the administrators. That means that they can check if there is something wrong in a recipe's page and inform the administrator to fix it.

- ❖ Administrators

The administrators have access to both recipe dashboard and admin dashboard. At the admin dashboard, the users can see all the registered users. They can add a new user, send email to managers or subscribers and delete or edit the existing users.

There is also a contact page, in case the users have a question to ask the administrators. The contact form is very simple and contains a simple type of captcha verification in order to avoid spam mails.

In summary, the design was an improvement of the prototype following the participants' opinions and adding more features. The green colour is still the main colour, but it is blended with a light grey shade which is used for the main body, as the participants suggested. The layout of the web application is not complicated and it is based on the

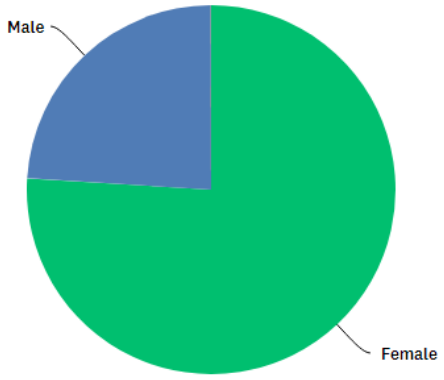
"mobile first" design. As the name indicates, the approach is concentrated to a responsive and adaptive design.[18]

8. Final Product Evaluation

8.1. Online Survey: Questionnaire

The questionnaire was sent to two – Greek and British – vegan groups on Facebook, after their permission was granted. In total it had fifty participants and 76% of them were women (Figure 24).

Answered: 50 Skipped: 0

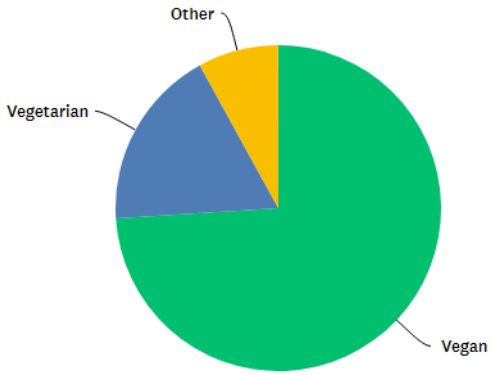


ANSWER CHOICES	RESPONSES	
Female	76.00%	38
Male	24.00%	12
Prefer not to say	0.00%	0
TOTAL		50

Figure 27. Online Survey - Participants

[18] https://www.uxpin.com/studio/blog/a-hands-on-guide-to-mobile-first-design/

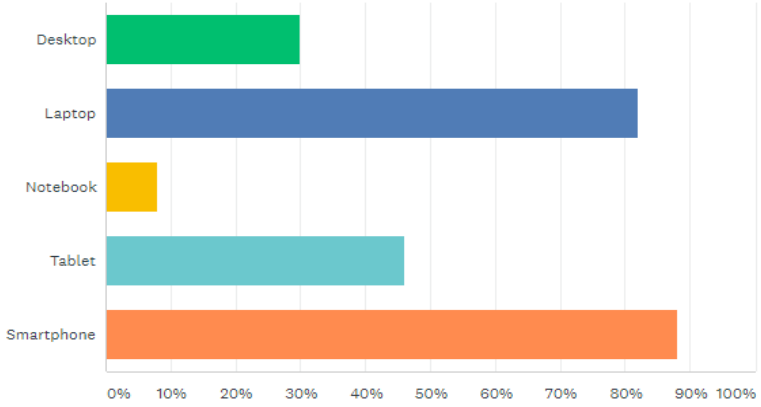
As it can be seen from the Figure 25, 74% were vegan and 18% vegetarian. This is a good proportion because the survey aimed participants that are mostly interested in vegan recipes.



ANSWER CHOICES	RESPONSES	
Vegan	74.00%	37
Vegetarian	18.00%	9
Other	8.00%	4

Figure 28. Online Survey - Dietary Preferences

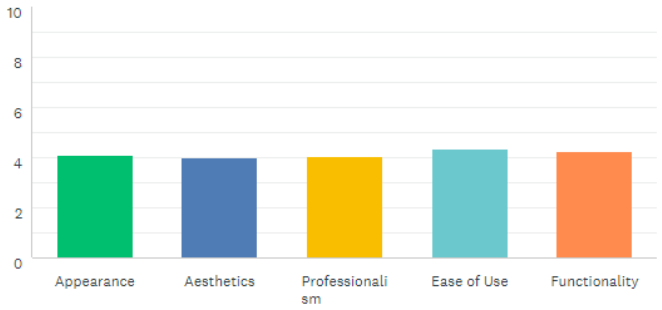
88% of the participants stated that they own a Smartphone and 46% said that they own a tablet. Which are a positive things, since it means that they are potential users and considering that the design of the app was based on “mobile-first” (Figure 29).



ANSWER CHOICES	RESPONSES	
Desktop	30.00%	15
Laptop	82.00%	41
Notebook	8.00%	4
Tablet	46.00%	23
Smartphone	88.00%	44
Total Respondents: 50		

Figure 29. Online Survey - Device Used to Visit the Web App

48% of the total participants said that the application was easy to use and the functionality was good (Figures 30). Only 2% stated that they didn't like any of the features.

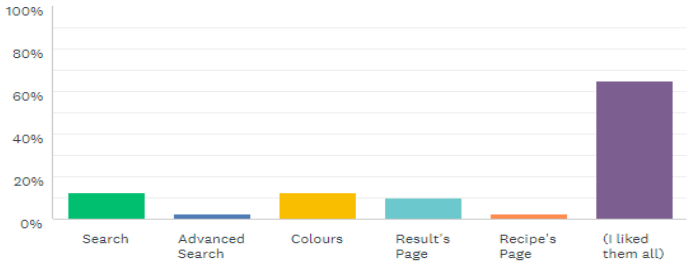


	HATE IT	DIDN'T LIKE IT	NEUTRAL	LIKE IT	LOVE IT	TOTAL	WEIGHTED AVERAGE
Appearance	0.00% 0	2.00% 1	18.00% 9	50.00% 25	30.00% 15	50	4.10
Aesthetics	0.00% 0	2.00% 1	22.00% 11	52.00% 26	24.00% 12	50	4.00
Professionalism	0.00% 0	2.00% 1	20.00% 10	52.00% 26	26.00% 13	50	4.04
Ease of Use	0.00% 0	0.00% 0	14.00% 7	38.00% 19	48.00% 24	50	4.34
Functionality	0.00% 0	2.00% 1	12.00% 6	46.00% 23	40.00% 20	50	4.26

Figure 30. Online Survey – Rating

Approximately the 50% of the participants stated that they liked the appearance and the aesthetics of the application.

The participants were asked if there was anything particular that they would prefer to change. Forty of them replied and the 35% wanted more recipes. Nonetheless, 12.5% of the participants stated that they would change the colour and another 12.5% would change the search feature.



ANSWER CHOICES	RESPONSES	
Search	12.50%	5
Advanced Search	2.50%	1
Colours	12.50%	5
Result's Page	10.00%	4
Recipe's Page	2.50%	1
(I liked them all)	65.00%	26
Total Respondents: 40		

Figure 31. Online survey - Things to change

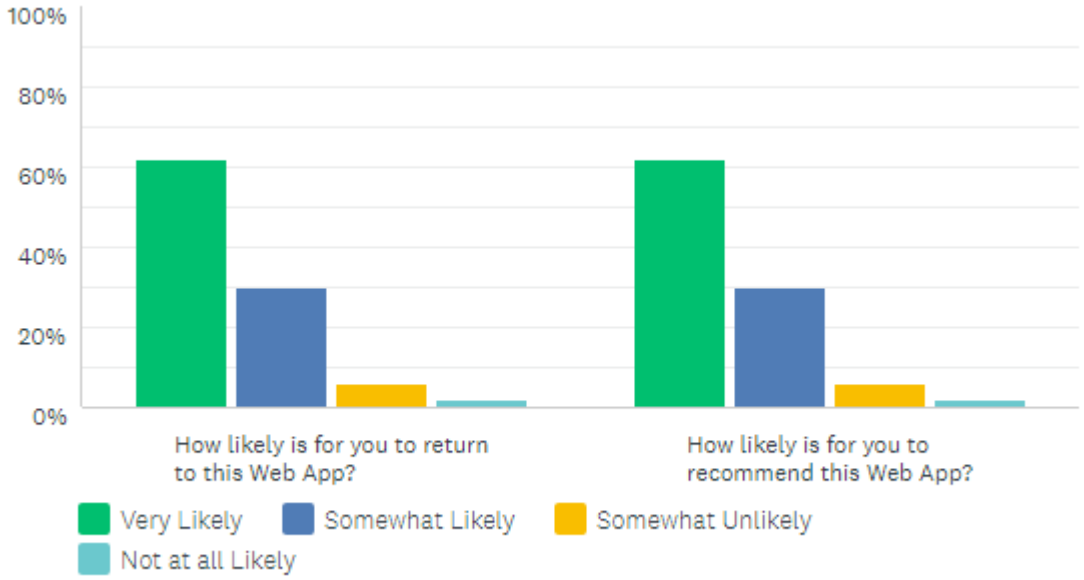


Figure 32. Online Survey - Recommended

Finally, 62% of the participants would recommend the app and would use the application again.

Some of their comments are quoted below categorised as positive and negative.

- Positive quotes
  - "Go on, this initiative is wonderful. I like that you included the calories, fat, etc."
  - "Add more recipes, but good job!"
  - "Keep up the very good work. I would not change anything!"

- Negative quotes
  - "More recipes and ingredients!"
  - "In my opinion would be more convenient if search was working with checkboxes instead of writing the ingredients.(eg it is a problem with spelling errors)"
  - "Due to the site's early stage, it kept showing there are no results even with ingredients like tomato or water, but I'm positive such things will be eliminated in the future."

In conclusion, the majority of the participants pointed out that the web application needed more ingredients and recipes. Therefore, they thought that the layout was simple and easy to use. One vegan female participant, between 30-49 years old, said that she didn't like the appearance, aesthetics and professionalism, but she found it easy to use. The same participant stated she didn't like the particular shade of the green, yet she was excited about the idea of a web application for vegan recipes.

Another vegan female participant, between 18-29 years old, indicated there was a problem in the search bar when she tried to search an ingredient she had to double tap, in order to use her keyboard. Additionally, as it can be seen in the quotes above, someone suggested

a different way to display the ingredients. All of these (list them) should be included in the future work, either for fixing or for revising. Although, none of the participants had impairment; hence the accessibility guidelines were not evaluated, it has been mentioned before that during the implementation these guidelines were considered and tested, using specific tools.

8.2. Nasa TLX

It should be noted that Nasa TLX questionnaire was used, in order to measure the effort that the users put when they interacted with the basic tasks of the web application. It was completed by three participants, who were not vegan, but that's fine because this questionnaire was used in order to have a wider idea about the effort for using the web application. All the participants agreed that the application didn't demand any mental or physical effort for all the tasks that they had to complete.

9. Appraisal

In general, the web development of the application went fairly smoothly. It was a good decision to choose PHP and MySQL for the application because they were more flexible and easier to learn since I had already introduced to the basics, during the Database module for my course. Now, I feel more confident using them and I am ready for one step ahead. I also gained some knowledge of the security methods, ways to avoid shrewd hackers and ways to encrypt passwords. Moreover, I learnt how encryption is working and the significant importance of encrypting the passwords. Moreover, I learnt how to implement the APIs for Facebook and Google+ login. I was concentrated on the backend development because that was really important for me; to get experience in that field, so I can gain the skills to work as a backend web developer in the future. As a result, my design is over-simplified. Although I had positive comments from the evaluation, I would like to improve it by adding more features in the future. Furthermore, I learnt about Materialize CSS framework, which was very easy to learn. It has many functions, such as drop-down menu, side menu and cards which were used in the web app. These functions helped me design responsive nice-looking material in a short period of time. I should point out that my skills in time management have been improved a lot since I started my course and the use of the timetable plan helped me to complete most of the tasks on time. Also, I used two participants to help me with the testing because I needed someone else to test the application from the front end environment. That helped me with the responsiveness, as well as with the "debugging" my code, which is very important when the project is big. The general feedback from the evaluation of the final product was really positive and that made me more confident about my work.

In summary, this project has been very useful for me, and since it was my own idea, I am glad that I gained all these knowledge and experience.

10.Conclusion

A web application for vegan recipes has been developed using the technologies that have been mentioned before in section 6.2.

Firstly, a medium fidelity prototype has been developed according to the requirements which were gathered on section 4. The prototype has been evaluated from the focus group, where some important changes were suggested, as it has been analysed in section 5.2.

Secondly, the development of final design started, according to the results of the focus group. In order to achieve creating a functional product, throughout the development, the code was being tested repeatedly. The implication was that this approach demanded a lot of time doing the testing, since there was not a team. For that reason, two participants have contributed by testing the features of the front end environment. Then, the final product has been developed; it is an application which accepts the ingredients from the users and suggests the recipes that contain the respective ingredients along with their nutrition information. Therefore, the aims of the project, as they have been stated in the section 1.1, have been achieved.

After the final product has been completed, an online survey was conducted in order to evaluate it. The questionnaire was sent to two different groups, one in Greece and one in UK. However, only two participants replied from the UK group, so there are might be some implications for the design, because of the difference in the culture. On the other hand the target group of the web application is vegan people and all over the world they share the same ideas, but there might be a market opportunity in Greece for the future, which will be analysed in the next section.

11.Recommendations for Future Work

Although the aims of the project have been achieved, some ideas arose throughout the evaluation of both the prototype and the final product. The highest priority should be given to adding more ingredients and recipes, which can be done from the control panel of the website. Also, a participant of the online survey mentioned an issue on the mobile version of the search feature, so it should be checked. Moreover, the green colour might need another consideration, since some participants of the survey mentioned that they don’t like it a lot.

Regarding the suggestions of the focus group, the “save it for later” feature is definitely recommended to a future update of the application, as well as a star rating system for the recipes.

As long as it concerns the custom backend environment for the recipes, it needs to be completed. The reason why it has not finished yet is that there was not enough time to complete the PHP functions and classes. These classes were needed for the “add a new recipe” and “edit this recipe” features that are not ready yet. It has to be noted that these features will be very helpful because adding new recipes or editing existing recipes will be faster. However, the administrators can delete the recipes which they don’t want. Another recommendation for the

feature would be to build a system that will store all the nutrition values of each ingredient and will calculate the nutrition values of each recipe. This is not a high priority task but it will make some things easier during the adding of a new recipe.

All the above were considered but due to lack of the time they were not completed; but delivering a functional product on time were more important.

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Appendices

I. Ten Usability Heuristics

These are the Jakob Nielsen's ten usability heuristics for user interface design:

1. Visibility of system status
   "*The system should always keep users informed about what is going on, through appropriate feedback within reasonable time*."
2. Match between the system and the real world
   "*The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order*."
3. User control and freedom
   "*Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo."*
4. Consistency and standards
   "*Users should not have to wonder whether different words, situations, or actions mean the same thing*."
5. Error prevention
   "*Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action."*
6. Recognition rather than recall
   "*Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate."*
7. Flexibility and efficiency of use
   "*Accelerators — unseen by the novice user — may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions."*
8. Aesthetic and minimalist design
   "*Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility."*
9. Help users recognise, diagnose and recover from errors
   "*Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution."*
10. Help and documentation
    "*Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large."*

Also, Jakob Nielsen proposed the following four-step rating scale for each severe, a few decades ago:

0	I don't agree that this is a usability problem at all
1	Cosmetic problem only: need not be fixed unless extra time is available on project
2	Minor usability problem: fixing this should be given low priority
3	Major usability problem: important to fix, so should be given high priority
4	Usability catastrophe: imperative to fix this before product can be released

II. Focus Group Questions

1) Do you like cooking?

2) Do you ever use the internet to look for recipes?

3) What are your first thoughts about the appearance?

4) Firstly, do you like the background colour or would you suggest something else?

5) How about the buttons and the main menu design?

6) Do you like the way the results are laid out? If not, would you suggest another look? For example, one recipe per line?

7) Considering that it will suggest only vegan recipes would you suggest any other feature except these that are currently there?

8) How do you find the idea of this web application? Would you use it?

III. Online Questionnaire

Part 1

1. What is your gender?
    - Female
    - Male
    - Prefer not to say

2. What is your age?
    - 18-29 years old
    - 30-49 years old
    - 50-64 years old
    - 65 years and above

3. What is the highest level of education you have completed?
    - Some high school
    - High school graduate

- Some college
- trade/technical/vocational training
- Undergraduate
- Postgraduate Degree
- PhD

4. What is your dietary preference?
    - Vegan
    - Vegetarian
    - Other

5. Which of the following do you own?
   (Tick all that apply)
    - Desktop
    - Laptop
    - Notebook
    - Tablet
    - Smartphone

Part 2

1. Please rate the website as a whole.
    - Appearance
    - Aesthetics
    - Professionalism
    - Ease of Use
    - Functionality

   (Hate it Don't Like it Neutral Like it Love it)

2. Where there any features that you did not like?
   (Tick all that apply)
    - Search
    - Colours
    - (I don’t know yet the design of the app, so I will add the rest of the features later)

3. What would you suggest to change in the app?
   (Short description)

4. How likely is for you to return to this Web App?
   (Very Likely, Somewhat Likely, Somewhat Unlikely, Not At All Likely)

5. How likely is for you to recommend this Web App?
   (Very Likely, Somewhat Likely, Somewhat Unlikely, Not At All Likely)

IV. Nasa TLX

Web Application for Vegan Recipes
Veganinjas.com

NASA TLX Questionnaire
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Name	Task	Date

Mental Demand — How mentally demanding was the task?

Very Low — Very High

Physical Demand — How physically demanding was the task?

Very Low — Very High

Temporal Demand — How hurried or rushed was the pace of the task?

Very Low — Very High

Performance — How successful were you in accomplishing what you were asked to do?

Perfect — Failure

Effort — How hard did you have to work to accomplish your level of performance?

Very Low — Very High

Frustration — How insecure, discouraged, irritated, stressed, and annoyed were you?

Very Low — Very High

V. Minutes

Day	Time
Friday 5/5/2017	16.30 - 17.00
Wednesday 10/5/2017	16.30 - 17.00
Tuesday 16/5/2017	14.00 - 15.00
Wednesday 24/5/2017	13.00 - 13.40
Wednesday 31/5/2017	12.00 - 12.40
Friday 9/6/2017	17.30 - 18.10
Thursday 22/6/2017	15.10 - 15.40
Monday 3/7/2017	12.00-13.00
Friday 25/7/2017	15.00-16.00