

David Gray x13467362 BSHTM
IEEE Requirements Specification Document

GF | Dublin



National
College *of*
Ireland

Declaration for BSHTM4 Final Project Submission

Section 1.

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Author	<i>David Gray</i>
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Supervisor	<i>Ron Elliot</i>

Section 2.

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1. Requirements Elicitation and Analysis Planning

1.1 Introduction

The application advertises and geo-locates Coeliac Friendly Restaurants in Dublin. There currently is no application on the market that provides this service despite the growing demand for having gluten free options on menus. To begin work on the Requirements Elicitation document for the Gluten Free| Dublin application all relevant information must be gathered in order to develop a view of the requirements that the stakeholders expect. Without adequate planning, a project can fail to meet the expectations of the various stakeholders involved. If the incorrect elicitation techniques are chosen, one might not be able to satisfy the stakeholders' requirements by missing out on vital aspects or overlooking one.

Problem Statement:

There is no application on the market that enables people with Coeliac disease or people who choose to follow a gluten free diet, to find a restaurant that they can go to in Dublin.

Personally, I'm surprised there isn't an app like this for a city like Dublin. The awareness of people with Coeliac disease is only going up and the popularity of people without the disease simply following the diet for personal reasons is also on the rise. The main risk acknowledged by the business owner and the Coeliac Society of Ireland have agreed upon is how we are going to guarantee to the users of the application that the menu option is 100% Gluten Free. To keep a meal gluten free, it must be kept away from any wheat-based products from preparation until it is served to the customer. So, I will be contacting some restaurants in Dublin to research if they actually do adhere to cross contamination protection standards and if they would like to be featured on an app like this.

1.1.1 Objectives

The objective of this project is to gather all necessary requirements and specifications in a document format for an application that can advertise Coeliac Friendly Restaurants around Dublin. The document will adhere to the IEEE guidelines. This will allow people who have coeliac disease (and those who choose to follow a gluten free diet) to quickly and easily find somewhere to eat instead of ringing up individual restaurants or checking menus outside the front door. The application will show the name, location, contact details and full menu of restaurants that agree to be advertised on it. To get all this information required to be displayed on the app, interviews with the Coeliac society of Ireland will be conducted and 4 restaurants that cater for coeliac's who would be interested on being featured on it.

So far, the Coeliac Society of Ireland have been contacted by email to request an interview with an employee. Upon the agreement to the meeting the aim is to ask them their opinion in relation to crucial requirements that they would expect to see on this application. A survey will then be put together to discover and identify requirements that end users of the application will expect to see. The survey will be spread through social media platforms and messaging services such as Facebook and WhatsApp. The information received will of course all be completely anonymous as is the standard when using this elicitation technique.

The survey will be created using the popular survey service known as Google Forms and the data will be used to assess what exact requirements and functions end users and stakeholders would be

looking for. From there the data can then be analysed and assessed to determine what requirements the users would like to see from the application and correlate them with what the other stakeholders have outlined. Once the requirements have been finalised the aim is to ensure the requirements can be met and the document can be completed to the appropriate standards.

1.1.2 Background

The idea of coming up with GF | Dublin came from experience in eating out in Dublin. Trying to find a restaurant that cater to people with coeliac disease or guarantee a gluten free meal can sometimes be quite cumbersome. There are options out there such as google maps but sometimes the restaurants that google maps has on its interface don't include a full menu or price list on their page. The only alternative that's available at the moment besides google maps is walking around and reading the menus outside. That is not the preferred choice for people who just want a simple meal that can cater to their dietary requirements. Word of mouth is another good way to spread the name of restaurants that can cater to these requirements but it's not as fast or convenient to do so. This is where the idea of an application that can do all of these things for you came into play.

The application idea of GF | Dublin would in fact include the features that Google maps has but just with more extras added on . Every restaurant that agrees to be advertised on the application would have to provide a full up to date menu with the relevant options (gluten free or not) and the prices of said food items.

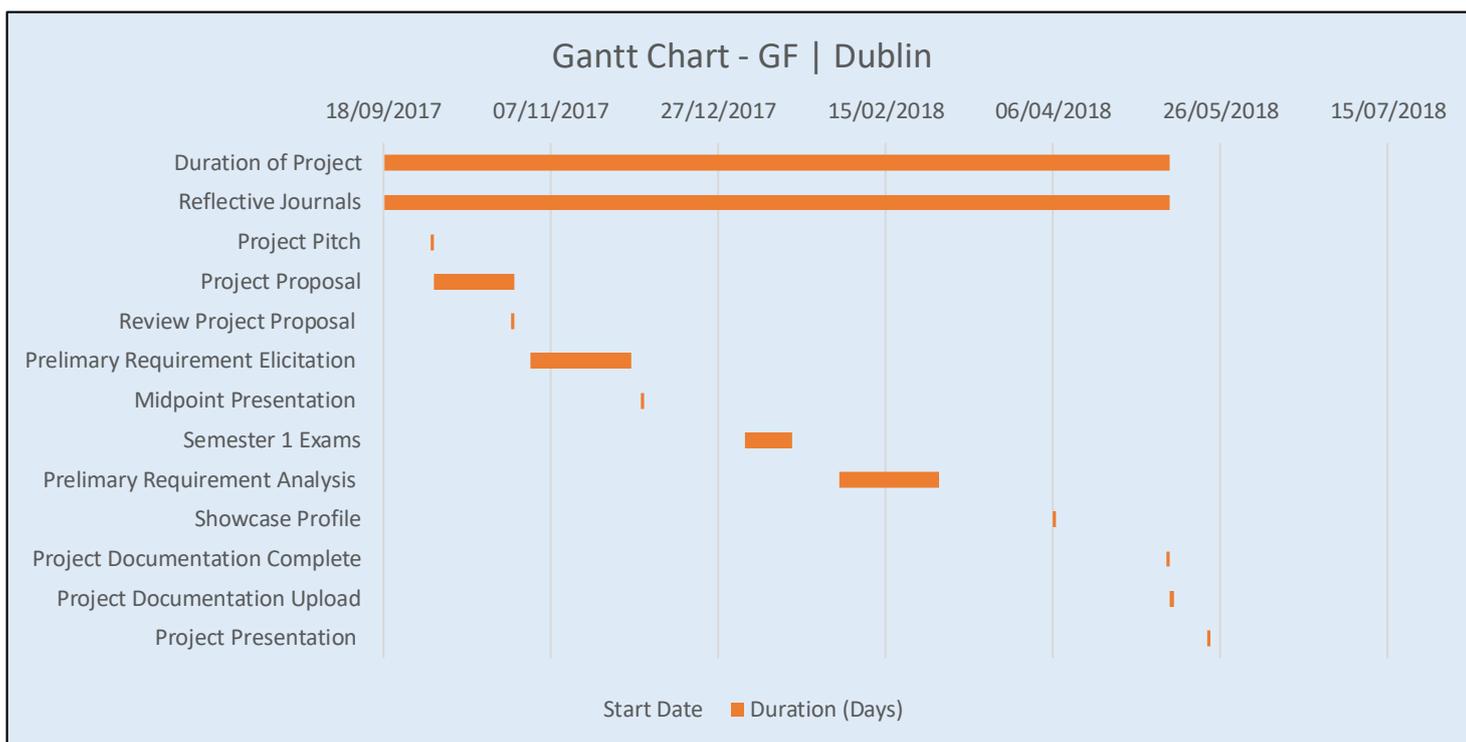
The restaurants that agree to be featured on the application will benefit greatly from it. Potential customers searching for a gluten free meal may not know they could get one in that restaurant until they saw it on GF | Dublin. There are benefits for both the restaurant and the customers. It will also aide in spreading awareness of the demand for gluten free options in restaurants and keep the options on the menu for people who require them.

1.1.3 Technical Approach

The technical approach to the requirements document for GF | Dublin will be influenced by results that have been gathered from the surveys, interviews and brainstorming sessions that will be conducted. Google Forms will be the tool used that will create the survey that will be distributed. It will be distributed by the various mediums of social media (Facebook, WhatsApp) and also emails. The various stakeholders will play a major part in the gathering information phase of the project. The information gathered will be used to understand what users and stakeholders would like to see in this app. From there a wireframe will be created using Balsamiq and the data will be analysed and put forward into a summary. The analysis will assist in understanding the data and what demographics look for what functions.

1.1.4 Project Plan

The project is due to commence in November 2017 depending on the response received from the stakeholders that have been contacted to date. Below is a Gantt chart for the proposed timeline of the Project Plan for GF | Dublin. Included in the Gantt chart are deadlines set out by the project coordinator from the National College of Ireland. Below the Gantt Chart is a table known as a Work Breakdown Structure of the various tasks that must be completed in the Gantt Chart. According to BABOK Guide (2015) a Work Breakdown structure is “A deliverable-oriented hierarchical decomposition of the work to be executed to accomplish objectives and create the required deliverables. It organizes and defines the total scope of the project.” (BABOK, 2013).



Work Breakdown Structure

Task Description	Start Date	Duration (Days)	End Date
<i>Duration of Project</i>	18/09/2017	235	11/05/2018
<i>Reflective Journals</i>	18/09/2017	235	11/05/2018
<i>Project Pitch</i>	02/10/2017	1	02/10/2017
<i>Project Proposal</i>	03/10/2017	24	27/10/2017
<i>Review Project Proposal</i>	26/10/2017	1	27/10/2017
<i>Preliminary Requirement Elicitation</i>	01/11/2017	30	01/12/2017
<i>Midpoint Presentation</i>	04/12/2017	1	04/12/2017
<i>Semester 1 Exams</i>	04/01/2018	14	18/01/2018
<i>Preliminary Requirement Analysis</i>	01/02/2018	30	03/03/2018
<i>Showcase Profile</i>	06/04/2018	1	06/04/2018
<i>Project Documentation Complete</i>	10/05/2018	1	10/05/2018
<i>Project Documentation Upload</i>	11/05/2018	1	11/05/2018
<i>Project Presentation</i>	22/05/2018	1	22/05/2018

This work breakdown structures shows the exact task, start date, duration and end date of the project in an easy top read table. The data used for the Gantt Chart was taken from this Work Breakdown Structure and created in excel. Having the Gantt Chart and Work Breakdown Structure gave a solid plan of approach regarding dates for the project. Adding in exams also highlighted hindrances in progress due to external variables or factors.

1.1.5 Evaluation

To evaluate the project, a Requirement specification document will be produced during the course of the year. Included in said document will be the selected requirement elicitation techniques that will be used such as Surveys, Brainstorming, Interviews and a SWOT Analysis. After the requirements have all been documented an analysis will then be conducted on these said requirements.

A detailed document will be provided by implementing and analysing these techniques that have been chosen for the project. Most of the main functions of the application will be collected after the 'Mid-Point Presentation'. To secure that all the requirements gathered have been documented, a meeting with the stakeholders to ensure no requirements have been missed will be necessary to certify the document has been completed to the highest of standards and to appease the stakeholders involved. A meeting will be had with the project supervisor, Mr. Ron Elliot, when the document is complete, to ascertain if there is a need for any improvements and discuss the document in general.

To sum up my project, I think it has good potential and the idea is something that is personal to me. It's something that if it was on the market today I would be using myself and I know that others would as well. I've chosen to just focus on restaurants in Dublin for now as a first stage of the potential application supported by the Coeliac Society of Ireland. I enjoy going out for dinner and drinks, just because I am coeliac shouldn't mean it has to be more difficult for me to enjoy myself. The process of creating this document will involve most aspects of what I have learnt and I'm looking forward to it. The idea itself is something that I have personal experience with.

1.2 The Business Need

The demand for restaurants to provide gluten free options on their menus has been growing over the last number of years. Although legislation was introduced in December 2014 compelling restaurants to clearly mark allergens on their menus, it is still difficult to find a restaurant that can cater for people with coeliac disease. Not only is it because of the 'fashionable diet' choice, but mainly due to the people in Ireland with coeliac disease who raised awareness of the issue. In 2017 it is much easier than it was 10 years ago for a coeliac to go out for a meal, but some limitations can still arise while looking for a place to go for food. People with coeliac disease mostly find out about a restaurant that serves gluten free options by using google or by walking up to a restaurant and reading their menu outside. The options mentioned before aren't completely tedious, but it would be easier if there was just one simple method to find a place suitable for their needs. Its time consuming and difficult and at times embarrassing. Whereas if there was an application that could find a place in a few seconds and give you the venues menu and prices it would save people time and hassle. There is a need for an application of this nature as people with coeliac disease often get overlooked or forgotten about in regard to restaurants' menu choices. Some restaurants in the city also may not be advertising the fact that they have gluten free options on their menus. Restaurants in Dublin may not think that the

market is there yet for them to add gluten free choices to their menus. But, this application will give them access to their target market which will help keep gluten free options selling and remaining on menus.

To understand the concept and vital needs of the application, a requirements elicitation gathering will be conducted, which will determine what requirements the identified stakeholders would expect to see coming from this application.

1.3 Business Case

Coming up with the idea of this application came from experiences of trying to find a place to eat in town. I have coeliac disease which means I must be cautious when I go out to eat in restaurants and must spend time walking around reading menus and googling restaurants. So, the idea of an application that has all the information I and other users need in my hand without having to walk anywhere or google things came naturally. It can benefit not only myself and others who are coeliac, but it can benefit restaurants who cater for a gluten free option as well.

Once the user goes into the search for a meal section of the application they will be presented with a google map. On the map it will have the name of the streets and some landmarks around the area as seen on google maps. The main icons will be the restaurants that provide a coeliac friendly option on their menus. Once the user taps the icon the name of the restaurant will be displayed on the restaurants tab below the search bar, and the menu and contact details will be as well once the user selects the restaurant on the restaurants tab. The user can then choose to get directions to it from their location.

The application itself does not have any funding as of yet except for the planned revenue to be generated from advertising.

1.4 Stakeholders List

There are currently 6 identified stakeholders at this stage of the project. As the project develops and the surveys and interviews are conducted more stakeholders will potentially be identified. Currently the identified stakeholders are:

1. Coeliac Society of Ireland
2. Restaurants being featured on the app
3. Application Developers
4. Business Analyst
5. End Users
6. People with coeliac disease
7. People who chose to eat a gluten free diet.

The stakeholders play a vital role in the decisions and methods of approach for this project. Each individual stakeholder has their own specific requirements, expectations and opinions regarding each aspect of the application idea. There will be contact amongst stakeholders through the different stages of the project so that everyone's requirements and opinions can be brought to the attention of the Business Analyst.

2. Requirements Elicitation Techniques

2.1 Brainstorming

2.1.1 Overview and Objectives

The aim of this technique is to get different forms of opinions from stakeholders to see if there are any improvements to be discovered or adapt some of the main ideas to ensure the application meets the requirements outlined. This is a great technique to get ideas rolling and to improve the train of thought towards future aspects of the project. According to BABOK, 'brainstorming is an excellent way to foster creative thinking about a problem. The aim of brainstorming is to produce numerous new ideas, and derive from them themes for further analysis' (BABOK, 2015).

Brainstorming mainly works by focusing on a specific section or potential issue with the idea. Then the ideas are brought together and which the initial requirements are discovered. After this it's time to decide on how exactly the requirements will be met. This can be the most difficult aspect of it but if anything, it is the most important. If the solution literally cannot be implemented without creating even more issues its back to the drawing board.

The objectives will be basic enough for the purposes of the early stage of the project but as the project progresses they will go into more detail. The aim is to come out of the brainstorming session with a few alternative ideas to the original ones. Getting other people's opinions on the project will be essential to getting the most accurate requirements and expectations. All advice and opinions will assist in gathering requirements while also serving as an aide in selecting the aspects of the application that can stay, be added or removed. The first brainstorming session will be with college student in the 18 – 24 age bracket. The application idea will be explained to them along with the planned approach to the project as well as the various stakeholders that have been identified. The sessions aim will be to start pooling initial ideas together and identifying potential issues that may occur. A great reason to work with college students on this brainstorming session is the fact that they are looking at it from an outside view and may see issues or opportunities that a stakeholder may have missed. It's good to get an outside perspective on projects of this size as some issues may be overlooked or not recognized.

2.1.2 Participants

Business Analyst - David Gray

End User Stakeholder - Sean Rooney

End User Stakeholder - Brian Wong

The participants are individuals recommended by The Coeliac Society of Ireland.

2.1.3 Brainstorming Session Guidelines

- Show up 10 minutes early for some tea or coffee and a brief chat
- No discussion of the application or ideas before the session is due to commence
- Phones to be switched off upon arrival
- Everyone will have their turn to bring their ideas to the table. Approximately 15 minutes or less per person
- No interruption of other participants during their turn
- 15-minute recap at the end to discuss the ideas in greater detail or refine them

- Any unacceptable behaviours and a participant will be asked to leave

2.1.4 Location

Room 1.05

National College of Ireland, Mayor Street

IFSC

2.1.5 Date & Time

20th of November 2017 at 17:00

2.2 Survey

2.2.1 Overview & Objectives

The second elicitation technique will be a survey with questions based on attempting to understand end user and stakeholder requirements. According to BABOK (2015), ‘the purpose of a survey or questionnaire is used to elicit business analysis information-including information about customers, products, work practices, and attitudes-from a group of people in a structured way and in a relatively short period of time’ (BABOK, 2015). The survey will be distributed out to college students and more importantly people who have coeliac disease. The aim is to achieve at least 40 responses in order to gather enough information to make accurate decisions with regards to the applications functions. The questions that will be included in the survey will include close ended questions using the ‘Likert scale’ (1 to 5). There will also be radio box questions and multiple choice questions. The data gathered will in their various question formats show the information given in the form of bar charts and pie charts. Below is the list of survey questions that were included and will be sent out to people with Coeliac disease and people without coeliac disease. The survey will be distributed via social media platforms and emails. The first question was done so that the survey takers know that the information they are submitting will be used in the gathering of information for an application. Their data was, of course, kept anonymous and no email addresses were collected during the course of the survey.

The questions below are the questions that are going to be included in the survey.

The data you submit with this survey will be used in gathering information for developing an application. Your data will remain anonymous. Do you agree with this?

- Agree
- Decline

You are:

- Male
- Female

What age are you?

- Under 18
- 18 - 24
- 25 - 30
- 31 - 40
- 41 – 50
- 51 – 60

- 60+

How did you find out about this survey?

- Word of mouth
- Social Media
- Messaging Service
- On a website

Do you have Coeliac disease or are you following a gluten free diet for other reasons?

- Yes
- No
- Follow the diet for other reasons
- Know a friend/family member who does

Are you aware of the Coeliac Society of Ireland

- Yes
- No

If yes, how did you become aware of the society?

- Word of mouth
- Online
- GP
- Advertisements
- Facebook

Are you a member of the Coeliac Society of Ireland?

- Yes
- No

What smartphone OS do you use?

- iOS (iPhone)
- Android
- Windows
- Blackberry

How often do you download applications

1. Often ----- 5. Rarely

How often would you pay to download an application?

1. Often ----- 5. Never

What do you look for in an application? (multiple choice available)

- User friendly layout
- Design
- Reliable Functionality
- Real time information

What feature would be most important to you in an application of this nature?

- Direction to restaurant
- Menus & Prices
- Contact Details
- Leaving reviews for other users

If an application to highlight Coeliac friendly restaurants was on the market how likely would you be to use/recommend it?

1. Very Likely ----- 5. Never

Which applications/websites below have you used to find a place to eat?

- Google Maps
- Yelp
- JustEat
- Lovin' Dublin
- Trip Advisor
- Other (please specify)

How often would you go out for a meal on an average month?

- Don't eat out
- 1-2 times
- 3-4 times
- 5+ times

On the below scale, how difficult do you find it to get a coeliac friendly meal in Dublin?

1. Very Easy ----- 5. Very Difficult

Would you agree with this statement: "Restaurants knowledge of Coeliac Disease is satisfactory"?

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Upon the successful gathering of the results from the sample group, the data will then be analysed and explained. From the information gathered any presumptions will be re-assessed and then be applied to the approach and requirements.

There are many strengths to conducting a survey or questionnaire when trying to gather requirements for a project of this nature. They are quick and inexpensive to administer and the data that is gathered can really support the project to advance into the next stages. Survey data can also potentially highlight areas of the project that might have been missed by or not thought about. It can provide new ideas and approaches to creating the application.

The survey will be sent out using the popular tool known as “Google Forms”. Google forms is a tool that’s used all over the world today. Not only is it free but it’s simple to navigate and export your collected data and it also provides charts for the analyst to take from it and put into their documentation. When the data is collected, the analyst will have a collection of bar charts and pie charts, each labelled with percentages and figures to ensure the most accurate decisions can be made regarding requirements. Sending out the survey will enable the analyst to retrieve the data from the real end users and stakeholders of the application. These are the people who would be using it on an average basis, not just stakeholders thinking about it around a table. Surveys are one of the best techniques of gathering the data needed to find out what the main end user stakeholders require or expect from an application of this nature. Including some open ended questions would theoretically give more ideas to refine or better ideas that have already been drawn up and considered for the application.

2.3 Interview One

2.3.1 Overview & Objectives

The main objective from conducting 1 to 1 interview with the Coeliac Society of Ireland would be to get a quick and accurate opinion from them as one of my main stakeholders. Meeting in person is known to be the best way to get a person’s instant thought. It ensures that people will give an honest answer, but it can also provide more opportunities for dialogue and brainstorming. According to the BABOK Guide (2015) an interview can be defined as “a systematic approach designed to elicit business analysis information from a person or group of people by talking to the interviewee(s), asking relevant questions, and documenting the responses. The interview can also be used for establishing relationships and building trust between business analysts and stakeholders in order to increase stakeholder involvement or build support for a proposed solution” (BABOK, 2015). Through the medium of text people can add in what they want to say but in person a certain phrase or thought could spark an idea that leads to another and so on. It’s easy enough to tell from people’s facial expressions what they really think about the question or idea. After the interview a path was then chosen in terms of some of the ideas that were put onto the table for discussion. Hearing what the Coeliac Society thought gave more of a direction and insight to keep it going and get started on the project. Once more objectives have been completed. The main contact will be David Cooney and his direct email address has been shared in order to set up these meetings.

2.3.2 Participant

David Cooney
Member Services Administrator
Coeliac Society of Ireland

2.3.3 Location

The Coeliac Society of Ireland,
Carmichael Centre,
4 North Brunswick Street,
Dublin 7,
D07RHA8

2.3.4 Date & Time

Wednesday, 8th of November 2017 at 11:00.

2.3.5 Interview Questions

1. From what I explained in my email, what is your initial opinion of the application.
2. Can you see the benefits to the potential end users?
3. Would you want this application to be revenue generating (ie: Pay on the app store/google play)?
4. If the application were to be developed would you recommend it to members of the Coeliac Society of Ireland?
5. Would there be any other features you would like to see on the application?
6. Can you see any opportunity for this application to spread across other counties of Ireland in the future?

2.4 Interview Two

2.4.1 Overview & Objectives

The goal from interviewing the first restaurant owner is to establish what they would expect from an application of this kind and if they would participate in being advertised on it. It would also provide an excellent opportunity to get any ideas from inside the restaurant industry itself that may give more scope to the application. The restaurants are a key stakeholder in this requirement gathering phase, so they cannot be overlooked or forgotten about. The information they (the restaurants) can provide could be critical to the success of the effective requirements gathering for this application. The objective is to share ideas and thoughts to ensure the application can provide the best possible experience for each stakeholder involved.

2.4.2 Participant

Manager of Lalis Restaurant Portmarnock

2.4.3 Location

Lali's Restaurant,
Strand Road,
Portmarnock,
Co. Dublin

2.4.4 Date & Time

Thursday 22nd of March 2018, 15:00

2.4.5 Interview Questions

1. Would you be interested in being featured in an application for restaurants that provide gluten free options on their menu?
2. Would you be agreeable to:
 - a) *Your full menu with prices being included on the application*
 - b) *Just your name with a link to your menu in PDF format?*
3. Would you agree to your restaurant being sorted/searchable by Food Type, Price Range, Location?
4. Can you confirm and be confident that your gluten free options on the menu are safe for people with coeliac disease?

2.5 Interview Three

2.5.1 Overview & Objective

Interviewing a second restaurant will ensure that not just one restaurant's opinion is noted in the requirements gathering process. They could have two completely contrasting opinions and ideas on the application, so it will be interesting to see their responses. The first restaurant is one in the city centre whereas the second was in Portmarnock, approximately a 30-40 minute drive outside the city centre. The different locations could provide different opinions, answers and ideas for the application and the method of approach to setting up restaurants on it. Again, the aim for the requirements gathering is to ensure that every stakeholder is satisfied with the result and the approach to creating and implementing the agreed upon solutions. The questions being asked will be the same questions as the ones that were asked in Interview 2.

2.5.2 Participant

Bunsen Burgers Floor Manager

2.5.3 Location

Bunsen Burger
South Anne Street
Dublin 2
Dublin

2.5.4 Date & Time

Wednesday 21st of March, 11:30

2.5.5 Interview Questions

1. Would you be interested in being featured in an application for restaurants that provide gluten free options on their menu?
2. Would you be agreeable to:
 - a) *Your full menu with prices being included on the application*
 - b) *Just your name with a link to your menu in PDF format?*
3. Would you agree to your restaurant being sorted/searchable by Food Type, Price Range, Location?
4. Can you confirm and be confident that your gluten free options on the menu are safe for people with coeliac disease?

2.6 MoSCoW Analysis

This technique will be the one used to aide in prioritizing the requirements gathered from the elicitation techniques. The purpose of a MoSCoW analysis is to ensure an understanding between stakeholders is achieved. The meaning of the letter in the MoSCoW analysis are Must Have, Should Have, Could Have and Would Have. According to Cupe International “MoSCoW Prioritisation plays a key role in Agile Project Management and it is vital to understand the importance of different requirements” (Cupe.co.uk). A MoSCoW Analysis can sometimes cause conflict between the carious stakeholders as they all have different opinions and ideas of which requirements should be prioritised more than others. Once the development is due to begin though, the business owner is the individual who has the final say on the matter or priority requirements.

2.7 SWOT Analysis

A SWOT analysis is a simple, yet crucial tool used to understand strengths, weaknesses, opportunities and threats to both the external and internal factors or conditions that would affect a business or project. BABOK Guide 2015 states “The language used in a SWOT analysis is brief, specific, realistic, and supported by evidence. SWOT Analysis serves as an evaluation of an organisation against identified success factors.” (BABOK, 2015). Another great reason to use a SWOT Analysis in a project like this is the fact that it can be used to understand the SWOT of a project/business at any scale, from large organisations to a starting out app developer. By correctly performing a SWOT Analysis stakeholder can have a clearer understanding of the potential impact of a current set of variables or conditions on an imminent set of variables or conditions. (See section 3.10)

2.8 Wireframes

A wireframe is model of an application or website that is used after requirements have been gathered in order to give stakeholders and idea of what the end product of the project may look like. Wireframes can also give insight into whether an idea actually will work with the current proposed solution. At this stage of the project I have yet to begin creating my wireframes for the application. This is due to the fact that I haven’t gotten any specifications or requirements from the majority of stakeholders in the project.

Upon gathering the results from the surveys and pooling together those results with the interview information I will then be able to start creating the wireframes based on that information.

2.9 Risks

Naturally there are risks involved with every project that has even been completed. The only way to effectively minimise the impact of the risks is to identify them early on and attempt to predict the potential impact they may have. The BABOK Guide, 2015 states that 'Failure to identify and manage risks may negatively affect the value of the solution.' (BABOK, 2015). Below is a list of potential risks and their impacts

Risk	Potential Impact	Treatment
Ensuring stakeholder can meet at required times for interviews.	This risk would impact the schedule set out in the project plan. The impact of this risk would be considered low.	There would be no choice but to work around the stakeholders and meet them halfway regarding times that suit.
Not being able to meet all of the set-out requirements as they could be out of reach regarding the budget.	The impact of this risk would be damaging to the applications value. The impact of this risk would be considered medium.	Going back to the various stakeholders and explaining the situation honestly. Discussing alternatives to ensure they are satisfied with the solution.
Stakeholders changing requirements and expectations as the project progresses	This is known as scope creep. The impact all depends on the stage of the project that this may occur. Considered a medium to high impact risk due to this.	Continuous communication with the stakeholders & using effective elicitation techniques to get the most accurate needs of the stakeholders.
Restaurants not allowing to be featured on the application	The impact of this would be High. If restaurants do not agree to be featured on the application, then there is no application.	Get in touch with as many restaurants that cater to gluten free options. Approach them with a solid and accurate plan and approach. Keep in contact throughout the project and ensure requirements are met.
Restaurants not having the time to meet with me to discuss requirements	Some stakeholders will be busier than others. The restaurant industry can be hectic. The risk would only impact the schedule of the project, so it would be a low risk.	Working around the stakeholder's requirements even for interviews is what ensures accurate information gathering. Working around their time is what will be done to minimise this impact
Restaurants not providing safe and consistent service for people with coeliac disease	Information on the application is not reliable then users will not trust it. The risk is considered to be high.	Restaurants reputations will be at stake and every effort will be used to ensure that only reputable and reliable restaurants are invited to participate

These risks mentioned in the above table will be closely looked at over the course of the project. If any new risks are identified in the later course of the project they will be analysed and added to the

table to ensure it too will be actively treated. Once the risks have been identified it is easier to mitigate the impact to the project.

2.10 Interface Analysis

Conducting an interface analysis is important for understanding how the end users will interact with the finished application. Included in the interface analysis will be the Use Case diagrams and the Wireframe mock-ups of the various pages that will be made for the application. According to BAOK Guide, an interface analysis is used to “identify where, what, why, how, and for whom, information is exchanged between solution components or across solution boundaries.” (BABOK Guide, 2015). An interface analysis will clarify the following:

- Who will use the interface
- What information is being exchanged through the interface
- When the information will be exchanged and its frequency
- Where the information exchange will occur
- Why the interface is needed
- How the interface is or should be implemented

(Source: BABOK Guide, 2015)

By gathering these requirements early in the project, it will highlight and potential issues to the stakeholders.

3. Requirements Elicitation Techniques Results

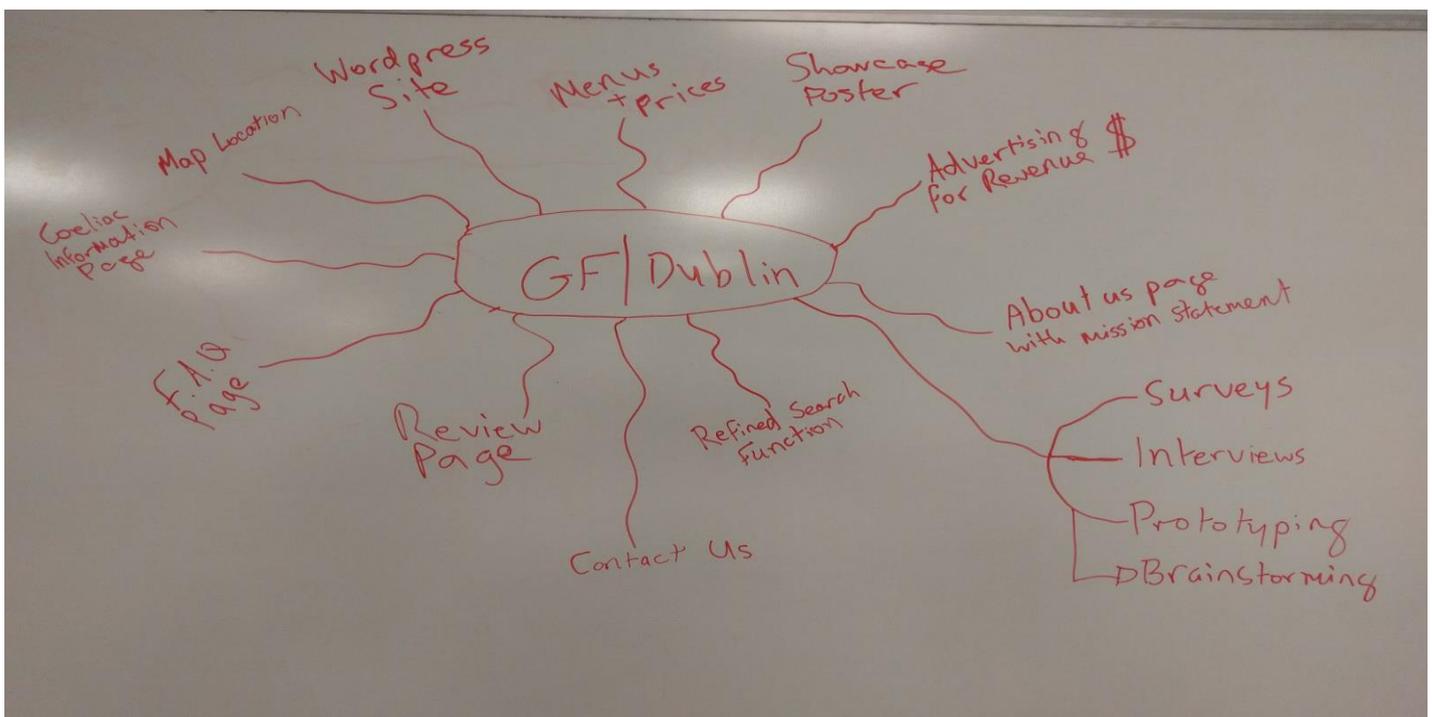
3.1 Summary

Below are the results that were gathered using requirements elicitation techniques. The necessary requirements for the application will be collected from the results and they will be used to outline tasks and requirements that will be used in the development stages of the application.

3.2 Brainstorming

The purpose of the brainstorming session was to get information on expected features of the application from end users and all also to share ideas to add in and help the application reach its full potential. A whiteboard was used to keep track of ideas that were discussed. The brainstorming session moderator recorded every participants' comments on the board and the Owner was the first person to add his ideas to the board. Before the session was put into planning a name had already been decided on the application. Although the owner was open to a discussion of alternative ideas, but the original name was kept for its simplicity and distinctiveness. The idea of adding a review page to the application was thought up by Sean Rooney, one of the participants in the brainstorming session. The owner wanted the users of the application to be able to share experiences of eating in the restaurants with each other and he proposed users being able to create profiles and message each other individually. Sean proposed that instead of having to create profiles and individually send messages to other users, it should just have a comment section the user can add to without signing up to anything. That practice actually deters people from creating accounts due to the number of extra steps involved to be able to leave a review. This was then added to the list of requirements that was elicited from the brainstorming session.

Below is the image of the whiteboard once all the suggestions and discussions were completed.



Also discussed during the session were the various other features that an application like GF | Dublin would need to have once complete. The possibility of generating revenue was a discussion that gathered different opinions. The owner didn't think that the application would benefit from it being charged on the application markets such as the App Store and Google Play whereas Brian Wong thought people would pay for it. The idea that came out of it was to have advertising to generate revenue. Once the survey results are analysed this decision can be changed. A question in the survey asks the participants would they download applications that they have to pay for and the owner will base their decision on the results of that question.

A refined search function was thought about by the owner when a discussion about how to find suitable restaurants based on price arose. This function was not previously thought about and was immediately added to the list of elicited requirements. This function will help users search based on the type of cuisine they are in the mood for, their budget for a meal or how close they are to a suitable restaurant. Users will also be able to save their favourite restaurants on the application if they wish. This idea was thought up by brainstorming participant Sean Rooney (end user).

Once every participant was satisfied with the brainstorming that was done, the review then begun. The reason for having the review at the end of the brainstorming session was to bring to light any concerns each participant had to the table. This was an effective way to discover any challenges to what was suggested and what could be done and what could not be done. The main concern for one participant was the refine search function. Since the menus are planned to be in pdf format they would actually be non-searchable without having to OCR each and every PDF upon downloading them, which takes time and disk space on the user's device. As a group we came up with the idea of having an average meal for 2, price per restaurant. This would be calculated by selecting popular items from each menu (starter and main only) and adding them up. Obviously the two meals would be gluten free meals as to keep in line with the whole reason the application is being developed in the first place. This was deemed an acceptable and achievable method of allowing end users find a place to eat within their desired budget.

3.2.1 Requirements Elicited: Brainstorming

1. Home Page
2. Review Page
3. Map Function
4. Comment Function
5. Rating Function
6. Search Function
7. Refined Search Function
8. Coeliac Information Page
9. Contact Us Page
10. Mission Statement
11. Restaurant Information Pages
12. Menu Options & Prices
13. Average Meal Cost
14. Save Favourite Restaurants
15. Contact Restaurant Function
16. F.A.Q Page
17. Link to WordPress Site
18. Advertisements

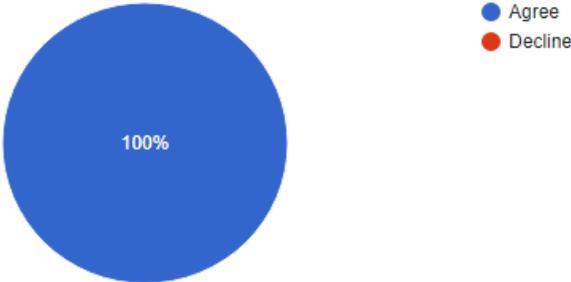
3.3 Survey

The below images are the results that were gathered from the survey that was distributed via Google Forms. There was a total of 18 questions and 49 responses from people of various age groups so as to give the most accurate results and requirements. The conclusion of the survey is located underneath the responses.

Question 1:

The data you submit with this survey will be used in gathering information for developing an application. Your data will remain anonymous. Do you agree with this?

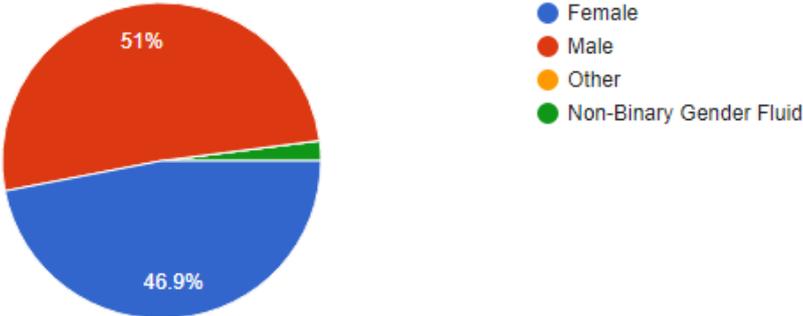
49 responses



Question 2:

You are:

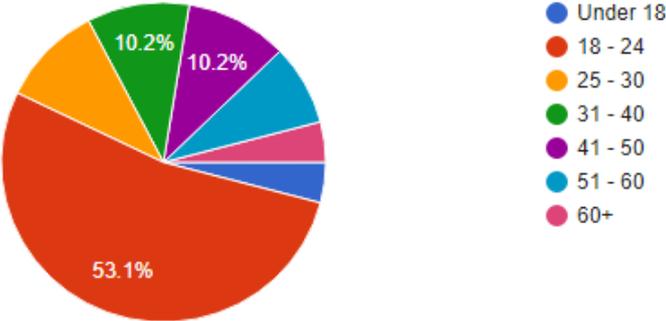
49 responses



Question 3:

What age are you?

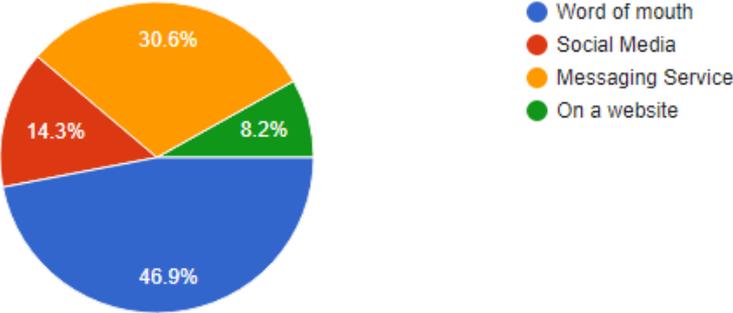
49 responses



Question 4:

How did you find out about this survey?

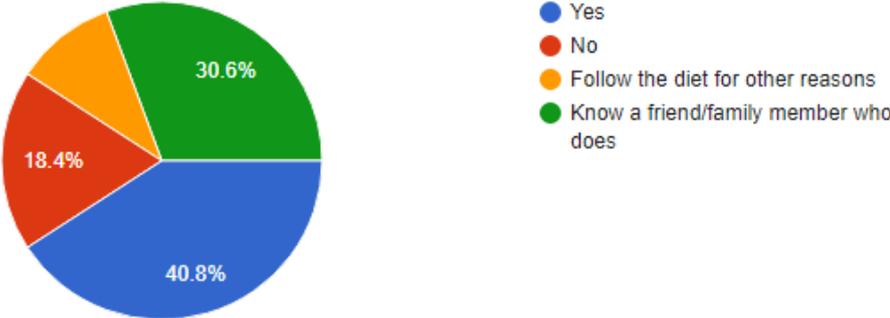
49 responses



Question 5:

Do you have coeliac disease or are you following a gluten free diet for other reasons?

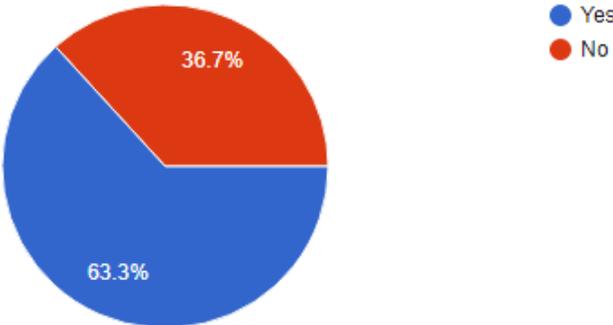
49 responses



Question 6:

Are you aware of the Coeliac Society of Ireland

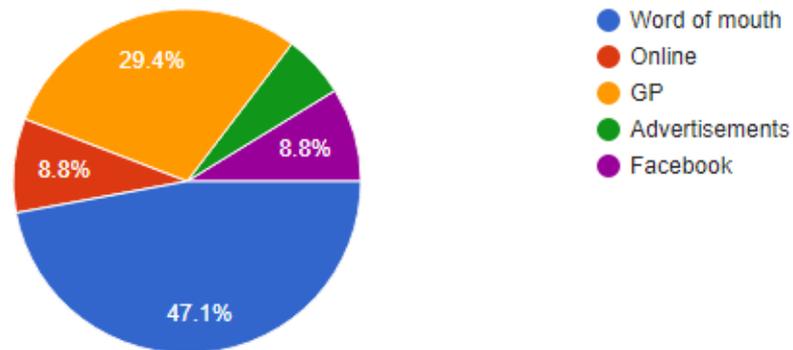
49 responses



Question 7:

If yes, how did you become aware of the society?

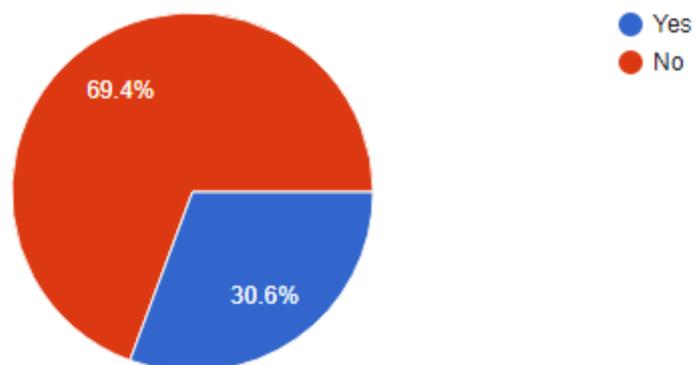
34 responses



Question 8:

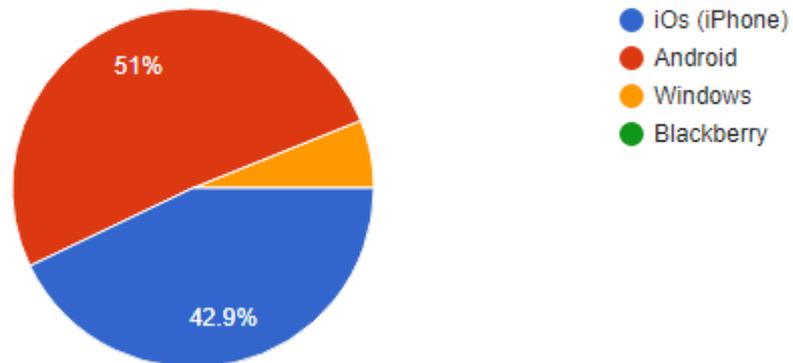
Are you a member of the Coeliac Society of Ireland

49 responses

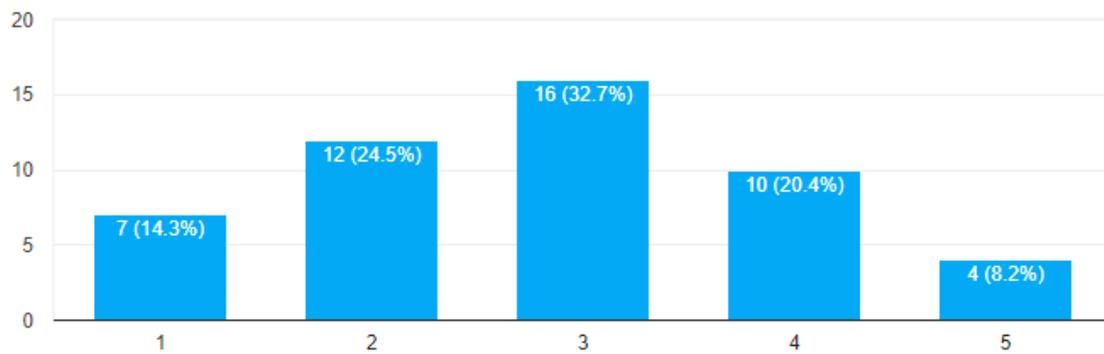


Question 9:**What smartphone OS do you use?**

49 responses

**Question 10:***(1 being often – 5 being rarely)***How often do you download applications**

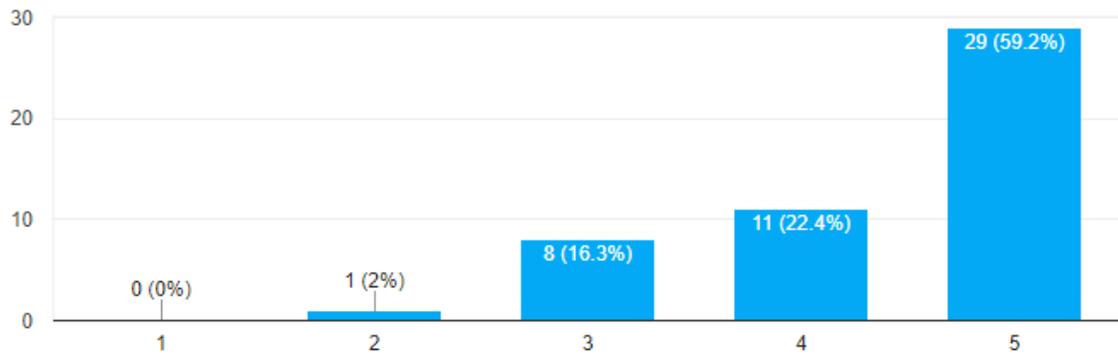
49 responses



Question 11:
 (1 being often – 5 being never)

How often would you pay to download an application?

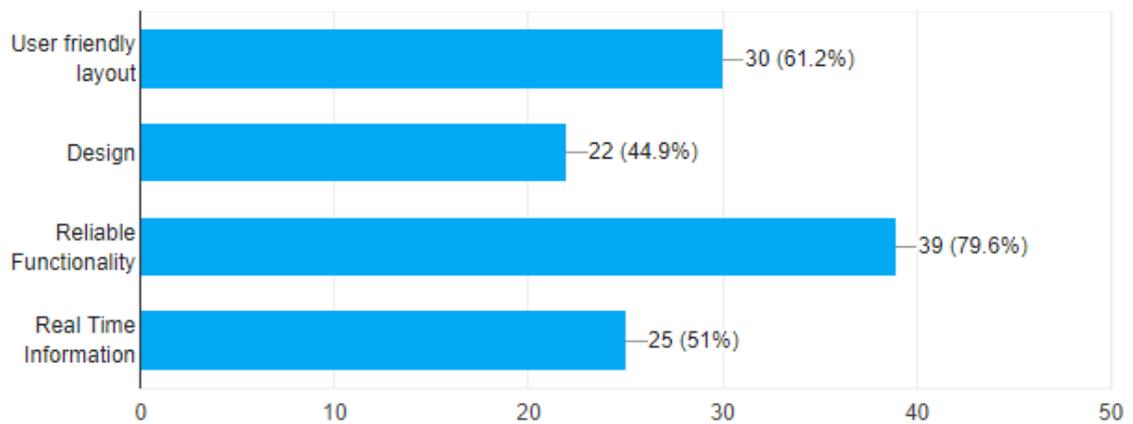
49 responses



Question 12:

What do you look for in an application?

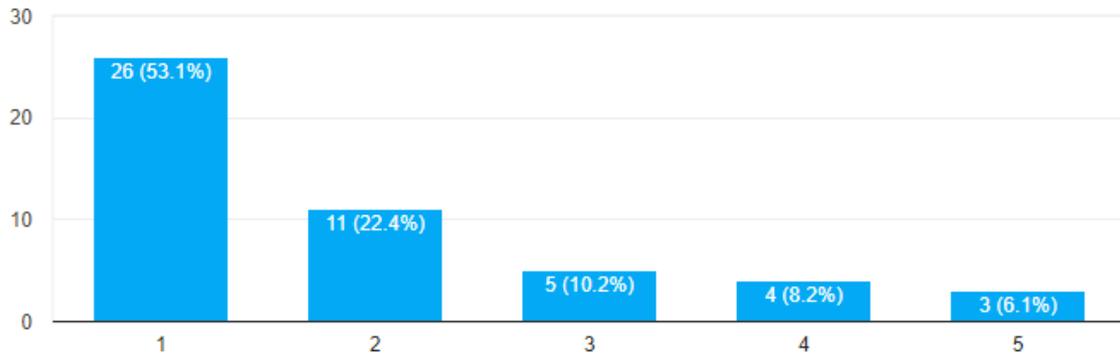
49 responses



Question 13:

If an application to highlight Coeliac friendly restaurants was on the market how likely would you be to use/reccomend it?

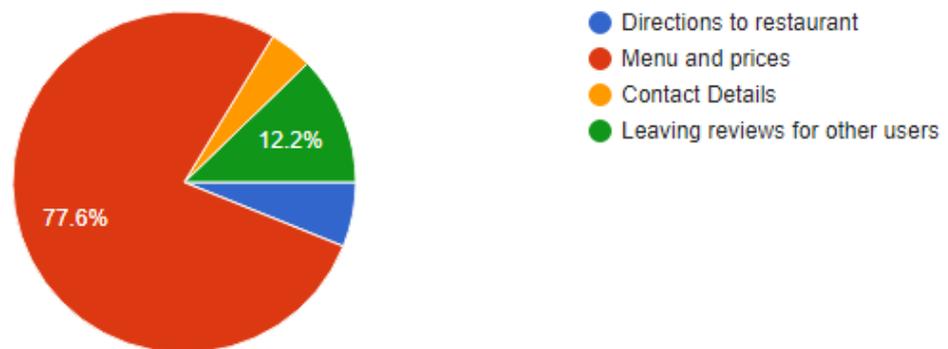
49 responses



Question 14:

What feature would be most important to you in an application of this nature?

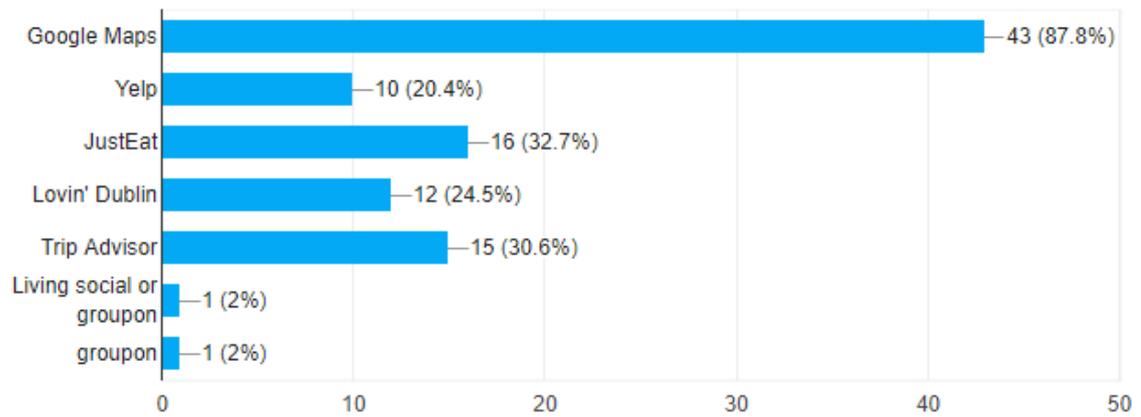
49 responses



Question 15:

Which applications/websites below have you used to find a place to eat

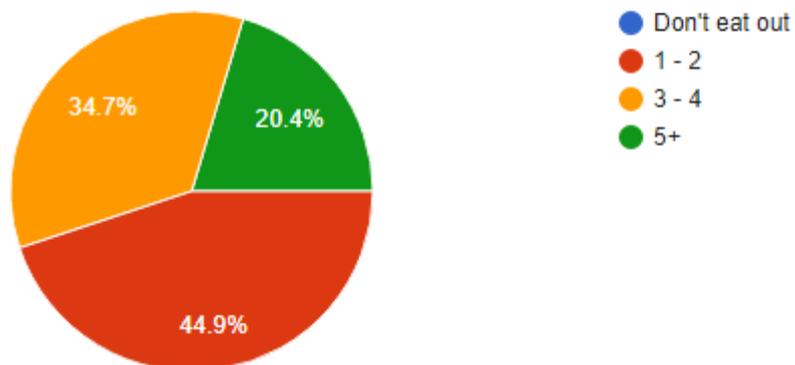
49 responses



Question 16:

How often would you go out for a meal in a month?

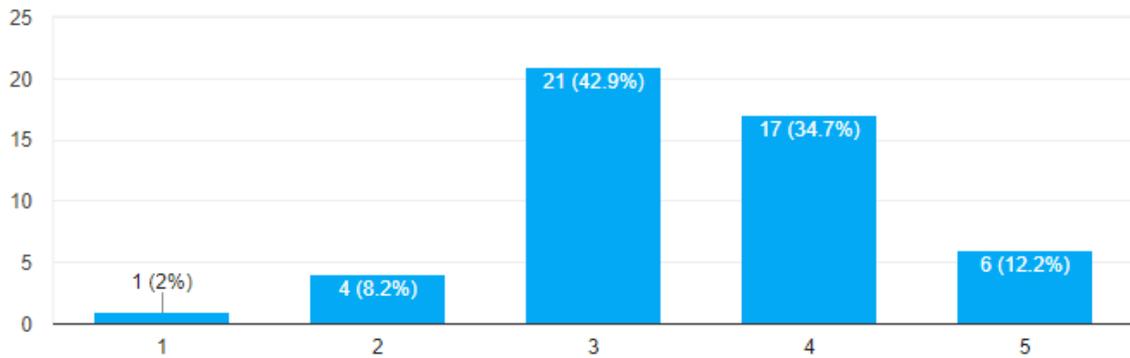
49 responses



Question 17:

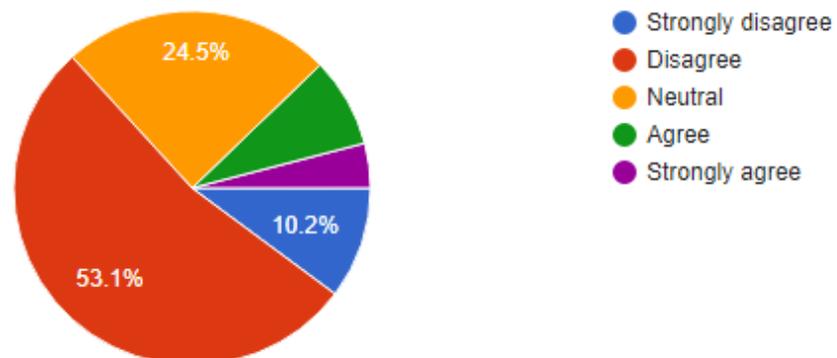
On the below scale, how difficult do you find it to get a coeliac friendly meal in Dublin?

49 responses

**Question 18:**

Would you agree with this statement: "Restaurants knowledge of Coeliac Disease is satisfactory"

49 responses



3.3.1 Survey Conclusion

The 49 responses to the survey was more than enough to gather some feedback and requirements from the participants to enable the successful development of this application. The survey was accepting responses for 5 days in total and thanks to the ease of creating surveys in Google forms it was all complete from start to finish in a week exactly. Certain survey questions were in relation to requirements that have already been gathered and the aim was to find out from potential users which ones they would find most beneficial to GF | Dublin once it was ready to begin development. Some questions also allowed the user to select more than one option such as Question number 12 “*What do you look for in an application?*”. The answers to this as seen in the screenshot above were focusing around having reliable functionality and also a user friendly layout. These expectations from end users will be taken into consideration when design the layout of the application and the features that will be included.

The level of female and male participants in the survey was even enough to assume each gender was represented fairly (Female: 46.9% Male: 51%). It is important to try to attain a balance in gender demographics when conducting surveys as different opinions and ideas could be obtained. The business owner made an extra effort to get participants from a wide variety of age groups. This was successful as there were at least two participants from every single age group. The three highest being the 18 – 24 (53.1%), 25 – 30 (10.2%) and the 31 – 40 (10.2%). There were two participants each in the 51 – 60 bracket and people aged over 60. It proved to be beneficial as there were a wide variety of different preferences and expectations between the various age groups. The older demographics went mainly opted for user friendly layout and design whereas the younger demographics wanted more reliable functionality and real time information. Variety in responses is always an aim for any business analyst when conducting surveys for eliciting requirements from for an application.

The survey was mainly spread out via the word of mouth as it was asked by the owner if participants could send it on to friends or family members who have coeliac disease who follow a gluten free diet for other reason. Out of the 49 responses to the survey 40.8% (20 people) have coeliac disease, 30.6% (15 people) have a friend or family member who does and 10.2% (5 people) follow a gluten free diet for other reasons. This means that 40 participants who completed the survey are aware of coeliac disease and know how going out for a meal can be.

Another important result to take into consideration is question number 10 “*How often do you download applications?*”. The responses came back in the form of a near perfectly distributed bell curve shaped graph. The results were normally distributed. According to statisticsshowto.com a bell curve is “another name for a normal distribution curve, it is a probability distribution that has certain characteristics, including the fact its shaped like a bell”. It shows people don’t download applications all the time, but they do regularly enough. The question after this, “*How often would you pay for an application?*”, proves that what was gathered from the brainstorming session was a correct requirement. 0% of people say they often pay for applications whereas 59.2% of participants said they never pay for applications. This would show that if GF | Dublin application went onto the market with a price, according to the survey results, 59.2% of people would not purchase it. If the application was free however you could expect people would download it to try it out and use it if they like it. Similar to the results in the previous question with the bell-shaped curve results. According to Forbes.com users don’t pay for applications due to a psychological factor called *anchoring* (forbes.com, 2016). Anchoring, according to Sagu.edu is a term used to describe “The human tendency to rely too heavily on one trait or piece of information when making decisions”. Humans expect applications to be free as most of them are. This is also the main reason end users have no

issue with paying large sums of money for software as it is expected to be that price. So, when presented with one that costs even €0.99, they expect it to be free so will very rarely make the purchase. This justifies having advertising present on the application. It generates some revenue for GF | Dublin while also ensuring people will download it if they would like to use it. Advertisements will not be as intrusive as some in-game advertisements, so the user experience will not be affected. The threat of competition would also affect sales of the application if it was to be charged for. If another application that did the same thing as GF | Dublin came onto the market and was free, GF | Dublin would lose out and potential users.

Participants in the survey indicated that the most important feature in an application like GF | Dublin would be the Menu and Prices of the various restaurants featured on it. Having this feature in the application would allow the end users decide where to eat based on the menu as a whole and get an insight into how much they would be spending on a meal before they arrive to the restaurant. The next feature after that was important to participants was leaving reviews for other users. This feature would allow them to share experiences with each other based on their own visits to the restaurants in question.

According to question number 13 in the survey 53.1% of participants would be very likely to use/recommend the application. On the other end of the scale 6.1% of participants stated they would not use or recommend the application. This can be attributed to other applications that can do similar functions as GF | Dublin or the fact they do not know anyone who follows a gluten free diet, or they have no interest in it. Google maps is a very popular application that people use to find a place to eat. Although it does not have menus on their restaurants that are featured on the application. The user would have to visit the restaurants website to view their menu. This is a feature that GF | Dublin can provide for its users that Google maps currently does not have. Out of the other applications selected by users that they use or have used to find a restaurant to eat in, two of them have menus featured on them. But they are not as popular as Google Maps is which is a positive for GF | Dublin to take out of the result. It is a market that is penetrable even with the competition.

The last two questions on the survey were to gather information on how difficult users find it to find a coeliac friendly meal in Dublin and if they think restaurants knowledge of coeliac disease is satisfactory. Most participants (42.9%) were in the middle ground leaning towards difficulty finding a meal that's coeliac friendly. Also, the majority of participants (63.3%) disagreed with the statement *"Restaurants knowledge of coeliac disease is satisfactory"*. This proves the need for the review feature on the application even more. Even if they restaurants have gluten free options they might not be prepared in a way that is satisfactory for people who have coeliac disease. Cross contamination of foods can occur in kitchens very easily if the staff are not well trained in preparing gluten free meals for customers who have this dietary requirement.

The overall responses to the survey were constructive and it helped gather understanding about the potential users' expectations and requirements for the app. Finalizing requirements going forward, the survey results will have the greatest input with regards to the every day end users of the application.

3.4 Interview One – Coeliac Society of Ireland

The first interview was with the coeliac society of Ireland in their offices on North Brunswick Street. In the interview potential improvements to the initial idea were discussed and any problems that might occur with developing the application.

This interview was an informal setting with just getting some ideas out there and opening the dialogue of communication.

The interview itself lasted about 35 minutes and was with the CEO of the Coeliac Society Fergal O'Sullivan and the Member Services Administrator David Cooney. Both of them were really impressed with the idea and we exchanged good alternatives and new approaches to the project.

Question 1: *What are your initial thoughts of the application?*

Their initial thoughts on the application was they thought it was a good idea it just needed some finalising of particular aspects. They want the restaurants featured on the application to be able to guarantee that the meals are 100% coeliac friendly and that their staff are adequately trained on how to prepare foods in a safe way for people who have coeliac disease.

Question 2: *Would you be in a position to recommend this application to member of the coeliac society?*

They agreed they would be able to recommend the application to members on the condition that restaurants that are featured on the applications can guarantee their options are coeliac friendly. As stated in the previous question they would have concerns that not all restaurants who serve gluten free options know exactly what coeliac disease is and how to handle the foods appropriately.

Question 3: *Can you see the benefits to the potential end users?*

They agreed there were multiple benefits to end users for this application. Firstly, they compared the application to Google Maps. Saying google maps advertises restaurants yes but doesn't have menus. This would save the user time. They also praised the idea of having a coeliac information page and the leave a review feature, so users can share what they thought of the venue and food. Another benefit they thought would come from the application is it may give people with coeliac disease more confidence to go out for dinner. Knowing the restaurants featured on the application are complying with gluten free food preparation standards will be very reassuring to them. They said that some of their members had written to them in the past complaining that a certain meal at restaurant 'X' definitely wasn't gluten free. The customer bought it thinking it was because it said so on the menu. Unfortunately, it was not. They stressed the importance of guaranteeing the restaurants comply with the food preparation standards and expectations.

Question 4: *Are there any features in particular you would expect to see in the application?*

One feature they mentioned repeatedly was the ability to leave reviews for other users. They mentioned the owner of the application could analyse bad reviews and present them to restaurant owners in order to raise awareness of the restaurants reputation with people with coeliac disease.

They also mentioned the fact it could help restaurants change how they view coeliac customers. While also bringing to light the necessary training their staff or even themselves may require to cater to their customers dietary requirements.

They also really liked the idea of the coeliac information page. End users who just choose to follow a gluten free diet may be interest to know about coeliac disease and its also good to spread awareness. Even restaurant owners could read it to learn a thing or two they added. They suggested to add in a link to the coeliac societies website in the Coeliac information page which will happily be added.

Question 5: *Would you want this application to be revenue generating?*

The initial thought the Coeliac Society had would have been it was to be charged for. But when the discussion about advertising revenue came up they changed their mind. The application isn't out to make a lot of money. Its there to provide a service to people who have the need for an application like this. As a group we agreed this was a key aspect to maintain 'To make going out for a meal a little bit easier'. Plus, with the competition out there on the App Store and Google Play having it paid would make it very difficult to get out there.

Question 6: *Can you see any opportunity for this application to spread across other counties of Ireland in the future?*

The response received from this question was very motivating. They claim that most of their members are based outside of Dublin. They thought that this would be an expected step to take when the successful development and deployment has occurred. They suggested testing the waters in Galway, Cork and Limerick and someday having all options in one application. They said testing out the market for the application in Dublin first was the best option to start off with.

3.4.1 Interview One - Conclusion

The interview was very constructive and informative. The Member Services Administrator, David Cooney and CEO Fergal O'Sullivan were very up front and honest in their responses. They were happy with the idea of the application but again stressed how the guarantee must be in place for users of the application to trust that the information on the application is accurate and up to date and that they have the reassurance they need when going out for meal.

3.5 Interview Two – Lali's Restaurant Portmarnock

The second interview that was conducted was with the manager, Lamara Hebib, of Lali's restaurant in Portmarnock. The interview was scheduled for Thursday the 22nd of March at 3pm. The objective of this interview was to get the restaurants opinion of the application. The selection of this restaurant was due to the fact it is based outside of the city centre so there is a variety in restaurants approached for an interview.

Question 1: *Would you be interested in being featured in an application for restaurants that provide gluten free options on their menu?*

Lamara really liked the idea of the application and said he would be more than happy to be featured on GF|Dublin. He added that since his restaurant specialises in Italian cuisine that people do not think that they would have options that are suitable for people with coeliac disease. Since the application would highlight that they do cater for it he would expect there would be more business coming into the restaurant.

Question 2: *Would you be agreeable to:*
a) Your full menu with prices being included on the application
or
b) Just your name with a link to your menu in PDF format?

We discussed how exactly the application owner would have to input each menu onto the application if the main viewing of menus would be in the application itself. He said he wouldn't mind having the pdf format but that it would defeat the purpose of having the application in the first place. It's supposed to allow customers avoid having to go to an external site to view the menu options. We agreed and thought its best to include the full menu with prices and also having the gluten free options included at the top of the menu clearly stated for ease of use for the customer.

Question 3: *Would you agree to your restaurant being sorted/searchable by Food Type, Price Range, Location?*

The reason for agreeing to be featured on the application is to get more business in the door Lamara said. He would be very happy to have people search by the criteria outlined. With the competition from Malahide only a 5-10 minutes' drive away he would hope that more people might come over to Portmarnock once they see Lali's prices are lower and the location being right by the beach is preferable. He added that GF|Dublin could add different criteria to the search function. An example he gave would be if the restaurant is family friendly and also a little bio of the restaurant. A lot of families with young children come through their door and are frequent customers. The restaurant is very understanding of the difficulties that can arise from bringing young children out but some restaurants are not.

Question 4: *Can you confirm and be confident that your gluten free options on the menu are safe for people with coeliac disease?*

He gave his guarantee that his food is prepared with the upmost caution when hearing a customer is coeliac. He said all staff go through food safety training which includes the preparation of meals that are being made for a customer with coeliac disease. He stressed the importance of ensuring customers know to highlight the issue to the waiter or chef upon arrival so they can get a section of the kitchen ready. They currently do not store any gluten free pasta but he did say customers are allowed to bring in their own and they will prepare it for them at no extra cost.

3.5.1 Interview Two – Conclusion

The main concern with having restaurants featured on the application is ensuring that they can guarantee and reassure the customers that they have confidence in the kitchen staff to prepare a meal that completely gluten free. The interview with Lamara was very constructive and positive regarding this concern. He also provided some extra ideas with the refined search function regarding certain criteria and characteristics of the restaurants featured on the application.

3.6 Interview Three – Bunsen Burgers South Anne St.

Going to a restaurant in the city centre as well as the previous one in Portmarnock, was done to see if there would be any contrasting opinions depending on location and clientele. The meeting was with the Floor manager Natasha.

Question 1: *Would you be interested in being featured in an application for restaurants that provide gluten free options on their menu?*

Seeing as Natasha wasn't the owner of Bunsen she couldn't give a definitive answer on this question. But she did state that Bunsen do have gluten free options on the menu and wouldn't see it as an issue being featured on the app. Any extra advertising is good for any restaurant especially in a highly competitive area which Bunsen is based in. They do get a lot of people coming in requesting the gluten free burger bun option as well.

Question 2: *Would you be agreeable to:*
a) Your full menu with prices being included on the application
or
b) Just your name with a link to your menu in PDF format?

The menu of Bunsen only includes Burgers and chips so they would rather have it being included on the application itself as it would very easy to put up and maintain. It doesn't ever change. The only thing Natasha raised concern about is that they don't have drinks on their menu. The drinks are on blackboards on each floor of the restaurant and they change regularly depending on what craft beers or ciders they have in on special or the price lists of the wine. This is the standard across every Bunsen restaurant because it goes with the whole simplicity and laid back style of eating out that Bunsen aims for.

Question 3: *Would you agree to your restaurant being sorted/searchable by Food Type, Price Range, Location?*

She said that it would be an essential part to the application. Sometimes people just want to go out for a burger and chips so they shouldn't have to go through all the other varieties of foods to find what they want. Seeing as a meal in Bunsen never is rarely over €15 per person (including a drink) it would be a crucial aspect to get people looking for a gluten free meal in the door.

Question 4: *Can you confirm and be confident that your gluten free options on the menu are safe for people with coeliac disease?*

Similar to Laili's Natasha said that all staff are extensively trained when it comes to food preparation and handling of foods intended for Coeliac. It's a companywide policy. On the menu it also states that the gluten free options for the burger buns are available. The store in South Anne St sells a lot of gluten free meals and the staff regularly have to handle and prepare food meant to be gluten free so they get a lot of experience and know how.

3.6.1 Interview 3 – Conclusion

To conclude the interview, we went over some of the key points and features that GF|Dublin wants to achieve and implement. Natasha was satisfied with the goals and how we plan on achieving them. The added input from a restaurant totally different from Laili's was very beneficial to refining the exact requirements from the restaurant stakeholder group.

3.7 Requirements Gathered from Interviews

Green Pre Interviews

Black Post Interviews

1. Home Page
2. Review Page
3. Map Function
4. Comment Function
5. Rating Function
6. Search Function
7. Refined Search Function
8. Coeliac Information Page
9. Contact Us Page
10. Mission Statement
11. Restaurant Information Pages
12. Menu Options & Prices
13. Average Meal Cost
14. Save Favourite Restaurants
15. Contact Restaurant Function
16. F.A.Q Page
17. Link to WordPress Site
18. Advertisements
19. Coeliac Society Website Link
20. Restaurant Bios
21. Menus to be in the application

3.8 Acceptance Criteria

According to BABOK Guide, Acceptance Criteria can be defined as: "Acceptance criteria are used to define the requirements, outcomes, or conditions that must be met in order for a solution to be considered acceptable to key stakeholders" (BABOK Guide, 2015). After all of the results from the various techniques that were used to gather requirements are documented, they were shown to the business owner. There then must be a discussion on how to proceed with the project. It's necessary

to do this in order to give development an idea of the wireframes required. Once the information gathered has been analysed, the business owner then selects the key features that would be the foundation for developing the application.

An agile approach to development was selected to tackle the development. Agile Project management is “an approach based on delivering requirements iteratively and incrementally throughout the project life cycle” (apm.com, 2017). Agile methodology relies on the frequent delivery of working software to gain customer satisfaction. It also gives the owner the opportunity to have an input and share their thoughts as the development progresses. Working software is the primary measure of progress and the frequent testing involved will mean that the final product should be fully functional.

The home page of the application will be the first place to start. It will display the buttons on the main part of the screen, the navigation bar on the top and the advertisements banner on the bottom of the screen, similar to most applications on the market. The requirements need the buttons on the main part of the screen to include the following: Find a meal, Refined Search, Coeliac Information, F.A.Q and Restaurant Reviews. The banner on the top of the page will have the Contact, About us and Website Buttons.

When the user goes onto the find a meal page they will be presented with a map of Dublin. There will be pins on the map indicating featured restaurants. The user can tap on the pins to open the restaurant information page where they can view the restaurants bio, their menu and reviews left from users who have been there before. The refined search button will bring the user to a page with a variety of different search criteria to use. They can search by name, location, meal budget and cuisines. They will also be able to select different amenities of restaurants using radio buttons. The amenities should include if Wi-Fi is available or if the restaurant is child friendly. When the user clicks on the coeliac information button they will be brought to an page with all the relevant information about coeliac disease. There will also be a link to the Coeliac Society of Ireland’s website as per request from the interview.

The F.A.Q page will feature some generic questions about preparing food for people with coeliac disease, what to look out for or ask in a restaurant and in the future, it will facilitate the addition of some questions asked by users to the page complete with answers. The restaurant reviews page is where people will go to leave a review on the restaurant they went to for a meal. They are brought to a page where they can select from a map the restaurant they attended and then a textbox they can input into. The reviews will be linked to the find a meal page as well. When the user taps the restaurant for more information they will be able to see the various comments and ratings left by users who added their opinions.

The contact button on the home page will bring the users to a new page that will allow them to enter their email (for the purpose of replying) and send a question or comment to the team to view. The About us button will take the user to an information page about GF | Dublin and the business owner and include the mission statement. Finally, the website button will take the user outside the application and open the GF | Dublin WordPress website in their default browser.

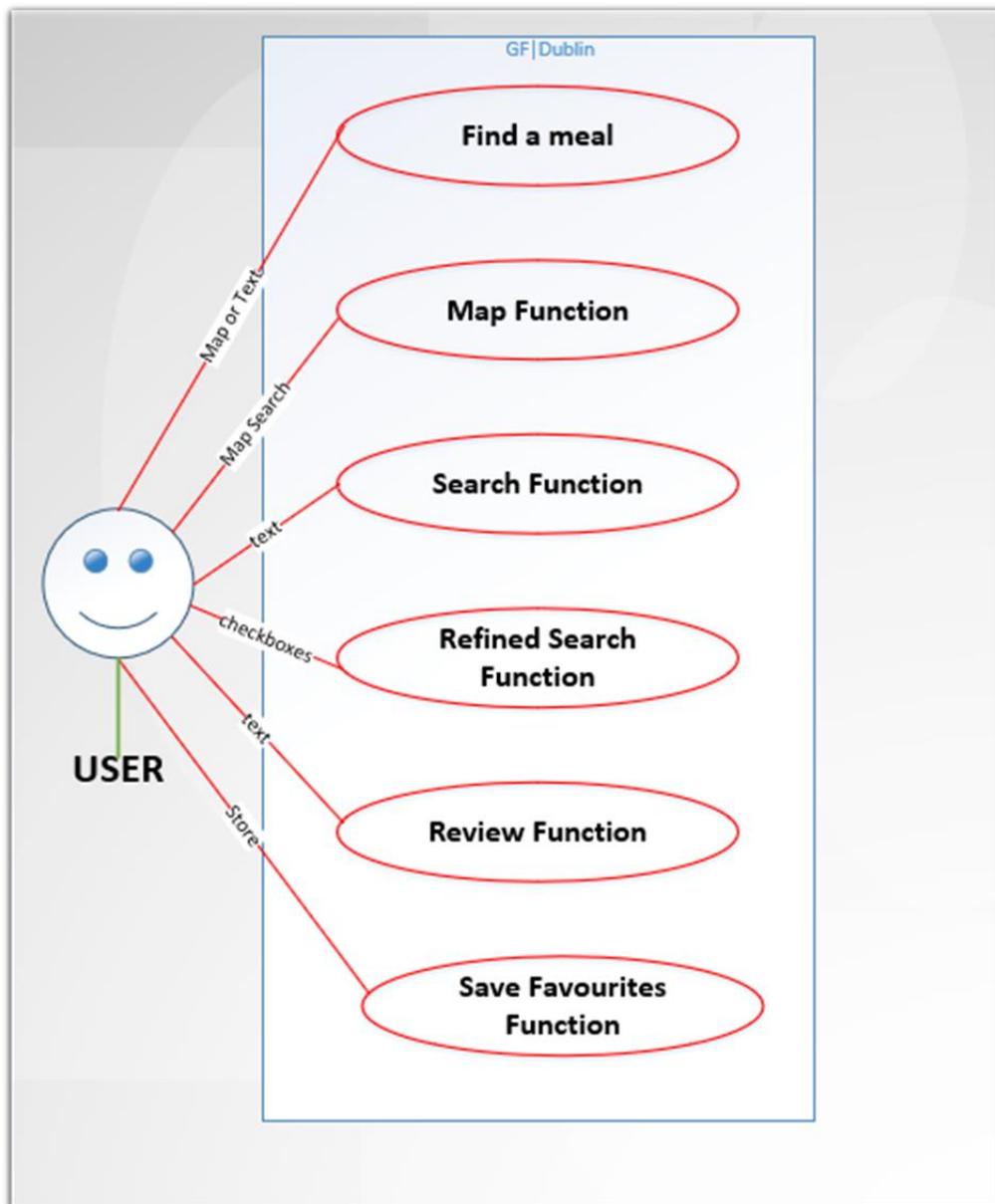
The next step was to conduct the MoSCoW analysis in order to prioritise the gathered requirements. The business owner had a thorough input into this task and the table below shows the requirements and their designated priority.

Requirement	As a	I Want To	So I Can	Priority
Home Page	User	Open the app	Use the app	Must
Review Page	User	Access the review page	Leave a review of a restaurant	Must
Map Function	User	Browse the featured restaurants	Find a place suitable to eat	Must
Comment Function	User	Tap on the restaurant	To view the comments from other users	Must
Ratings Function	User	Rate the restaurant	Share a star rating with other users	Must
Search Function	User	Search for a restaurant	Find a place suitable to eat	Must
Refined Search Function	User	Search for a restaurant	Find a place to eat based off specific criteria of the venue	Must
Coeliac Information Page	User	View Coeliac Information	To learn more about coeliac disease	Must
Contact Us Page	User	Contact the GF Dublin owner	To send an email to GF Dublin	Must
Mission Statement	User	View the statement	To find out what GF Dublin's mission is	Could
Restaurant Information	User	View information on restaurant	To read the bio the restaurant put up on the application themselves	Should
Menu Options & Prices	User	View menus of restaurants	To read the menus and prices on offer in the venue	Must
Average Meal Cost	User	Get Average Costs	Know how much the meal would roughly cost	Could
Save Favourite Restaurants	User	Store Favourite Restaurants	Easily navigate to their menu and reviews	Could
Contact Restaurants	User	Have Restaurants contact details	Contact the restaurant to book a table	Would
F.A.Q Page	User	Get Information	Find out frequently asked question about the app/coeliac disease	Must
Link to WordPress Site	User	View the website	View all relevant information about GF Dublin	Must
Advertisements	Business Owner	Generate Revenue	To run the application in the future	Must
Coeliac Society Link	User	Spread Awareness of the society	Inform more people of the work they do	Must
Restaurant Bio's	User	Advertise the restaurants	Inform people of the restaurants amenities and cuisine	Could

Menus to be in the application	User	Show the Menus to users	See if the restaurant is suitable to what the customer wants	Must
Choose final Application Name	Business Owner	Finalise the Name	Officially name the application	Must

3.9 Interface Analysis

3.9.1 Use Case Diagram



The diagram above is a Use Case to show how the end user will interact with the main functions of the application. For the find a meal function the user can either have their location services turned on or off. Either way they can use the map on screen or type the text in the search box above to find a specific location or restaurant. The refined search function will involve the user selecting specific criteria they want from the restaurant. This could include free Wi-Fi, family friendly and even parking

spaces. The review function will be utilised by having the user input text into a text box for the restaurant in question. Other users will be then be able to view this on when thy use the application. Finally, the save favourites function will allow the user to have a list of favourites stored within the application itself.

3.9.2 Wireframes



Figure 1: Home Page



Figure 2: Map Search

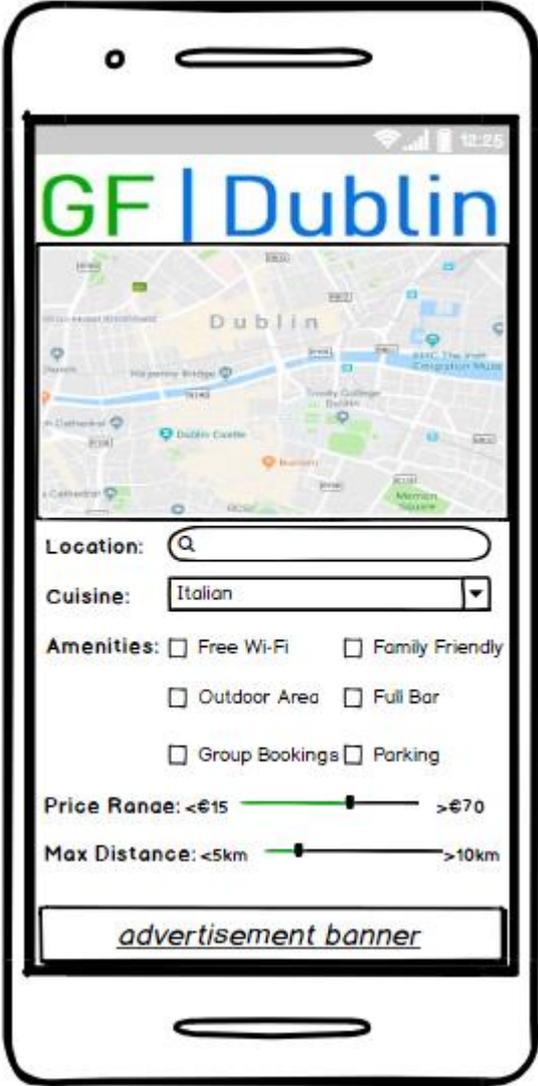


Figure 3: Refined Search



Figure 4: Menu & Prices

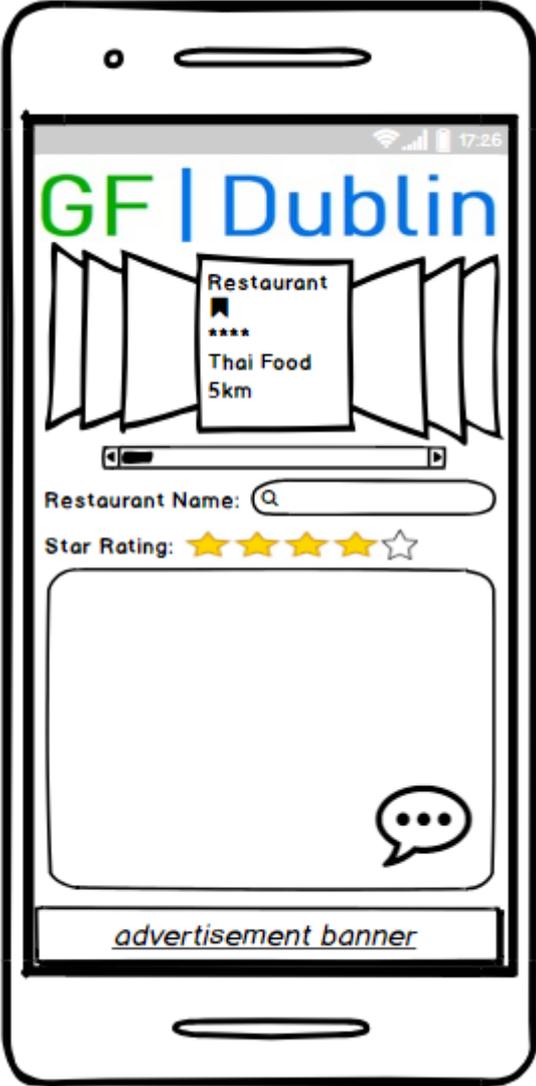


Figure 5: Review & Ratings

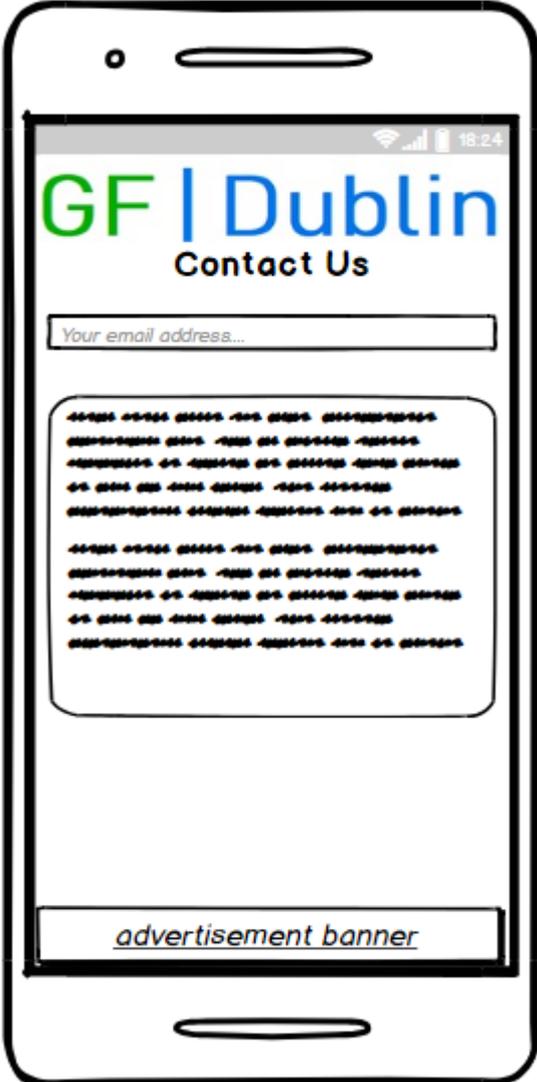


Figure 6: Contact Us

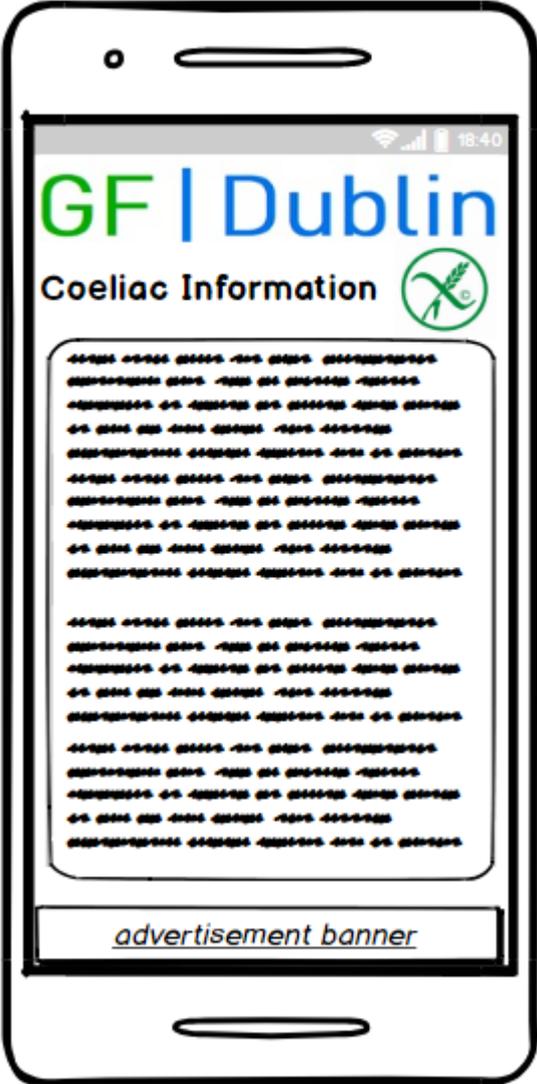


Figure 7: Coeliac Information Page

3.10 SWOT Analysis

The table below is the SWOT Analysis that was conducted for GF|Dublin. The analysis went through the various attributed to the application both negative and positive.

Strengths	Opportunities
<ul style="list-style-type: none"> • Unique application idea • Will have a specific target market • Catching Logo • Positive word of mouth from helping people with Coeliac disease • Advertising Restaurants 	<ul style="list-style-type: none"> • Growing demand for Gluten Free options • Restaurants offering to pay for advertisement on the application • General Google Advertisement revenue • Growing use of smartphones over all age groups • Opportunity to spread nationwide or to other countries.
Weaknesses	Threats
<ul style="list-style-type: none"> • Application will not have much revenue making opportunity • Marketing budget non-existent • No unique feature as of yet • Unique but not very large market 	<ul style="list-style-type: none"> • Application may not catch on • Google Maps • Expenses and lack of funding • Risks of not developing the application to the highest standard • Restaurants not guaranteeing gluten free menu options

4.0 IEEE Application Requirements Specification

4.1 Purpose

According to IEEE.org “System and Software test processes determine whether the outcomes of a given activity conform to the requirements of that activity and whether the development product satisfies its intended user and user needs.” (IEEE Std 829-2008). The purpose of the IEEE requirements specification document is to gather the requirements that have been stated in the project scope.

An Agile methodology to documentation has been chosen by the Business Owner for this Requirement Specification. This includes various epics, acceptance criteria and user stories to define the requirements. This method is being chosen over the typical functional and non-functional requirements that are traditionally used in a document of this nature. Once the document has been evaluated and approved by the business owner it will then be given to the developing and testing teams to ensure its feasibility and functionality.

4.2 Approach

The approach chosen for the development phase of GF|Dublin is an Agile methodology. The Requirements specification document will be utilized by the development team during team scrum sprint cycles. A Scrum sprint can be defined as “a regular work cycle in scrum methodology during

which work is completed and made ready for review.” (Techopedia.com, 2018). Features will be prioritized using the product backlog in ‘User Story’ formats.

The product owner will choose which user stories are to be prioritised in what order. The Agile team is made up of the Product Owner, Scrum Master & Team as is the norm is agile projects. Once sprints are completed they will present the completed features to the Business Owner for approval. In Agile projects, completed software is the primary measure of progress so the frequent delivery of working software is important to the satisfaction of the business owner.

4.3 Scope

Below are the features that are included in the scope for the requirements specification:

- 1) Review & Comment Function
- 2) Map Search Function
- 3) Refined Search Function
- 4) Contact Us Function
- 5) Save Favourites Function

4.4 Definitions

User Story: *One of the primary development artefacts for Scrum and Extreme Programming project teams. A user story is a very high level definition of a requirement. Containing just enough information so that the developers can produce a reasonable estimate of the effort to implement it.*

(Agilemodeling.com, 2014)

Epic: *Large user stories, typically ones which are too big to implement in a single iteration and therefore they need to be disaggregated into smaller user stories at some point.* (Agilemodeling.com, 2014)

User: A end user of the application looking to find a meal or write up a review of a restaurant they have visited.

Acceptance Criteria: *Conditions that a software product must satisfy to be accepted by a user, customer, or in the case of system level functionality, the consuming system.* (Leadingagile.com, 2014)

Done: *All acceptance criteria have been completed*

4.5 Epic 1 – Comment Function

4.5.1 User Story: User

As a user, I want to comment on my experience in the restaurant I went to for a meal. In order to share my experience with other users that are considering visiting the restaurant in question.

Acceptance Criteria 1:

- I. The user must select the restaurant name from the search bar
- II. Once the restaurant is selected they can give a star rating out of 5
- III. The user must input text into the text box.

- IV. Minimum character count is set at 10.
- V. Once these criteria are met the user can then leave a comment

Acceptance Criteria 2:

- I. If the user doesn't search for and select a restaurant from the search bar
- II. The user will not be able to select a star rating
- III. The user will not be able to input text into the text box.
- IV. An alert will come on their screen to tell them they must search and select a restaurant from the search bar.

Acceptance Criteria 3:

- I. If the user selects a restaurant from the search bar
- II. If the user does not select a star rating
- III. The user will not be able to input text into the text box
- IV. An alert will appear on their screen if they tap on the text box to try to write their review

Acceptance Criteria 4:

- I. If the user does not input any text into the text box
- II. The user will be given an alert to notify them they must put text into the text box to proceed until text is entered into the text box.

Acceptance Criteria 5:

- I. If the user does not input at least 10 characters into the text box.
- II. The user will be shown and alert on their screen to notify them of the minimum character requirements for them to leave a comment

Required Fields:

- I. Restaurant Name from search bar
- II. Star Rating out of 5
- III. Text in text box
- IV. Minimum 10 character count

4.6 Epic 2 – Map Search Function

4.6.1 User Stories: User

As a user I want to use the map embedded in the application to help me find a place to eat that caters for my dietary requirements.

Acceptance Criteria 1:

- I. The user must use the map to find a place to eat
- II. The user can then select a restaurant when it appears on the map
- III. If the user selects a restaurant on the map it appears on the panel the location search bar

Acceptance Criteria 2:

- I. The user must use the map to find a place to eat
- II. If the user wants to get directions to the restaurant their location services must be turned on
- III. The user then can select a restaurant when it appears on the map
- IV. The user then selects the restaurant on the panel the location search bar
- V. They can then select the direction icon to get directions to the restaurant from their location

Acceptance Criteria 3:

- I. The user must use the map to find a place to eat
- II. The user can use the search by location tool instead of browsing the map
- III. The user then can select a restaurant in their searched area
- IV. Their selected restaurant will appear on the panel below the location search bar

Required Fields:

There are no required fields. The user has the choice to use the search by location tool instead of browsing the map.

4.7 Epic 3 – Refined Search Function

4.7.1 User Story: User

As a user, I want to refined my search of restaurants to find a venue that can cater to my dietary requirements and also have certain amenities to avail of.

Acceptance Criteria 1:

- I. The user must go into the refine search page of the app
- II. The user has to input a location
- III. The user has the option to then select a cuisine
- IV. The user must select at least one item from the list of given amenities
- V. Then the user must select a price range for their meal
- VI. The user has to turn their location services on if they want to use the max distance tool
- VII. They can now search for the restaurant

Acceptance Criteria 2:

- I. The user must go into the refine search page of the app
- II. If the user does not enter a location to search within the app will not allow them use the search criteria that follow

- III. An Alert message will appear on their screen informing them of this requirement

Acceptance Criteria 3:

- I. The user must go into the refine search page of the app
- II. The user has to input a location into the location search bar
- III. The user can skip the cuisine criteria once the location has been selected.
- IV. If the user does not select an amenity from the list, they cannot continue their search
- V. An alert message will appear on their screen informing them of this requirement

Acceptance Criteria 4:

- I. The user must go into the refine search page of the app
- II. The user has to go input a location into the location search bar
- III. The user can skip the cuisine type once the location has been selected
- IV. The user can select at least one amenity from the list
- V. The user cannot search for a restaurant until the price range is selected
- VI. An alert message will appear on the screen asking them to complete this step

Required Fields:

The user will need to select a location, at least one amenity and a price range. The cuisine selection is optional and can be used to just narrow down results on what they're in the mood for. The max distance tool however, requires the user to turn on their location services. Without the services turned on the application cannot locate the user's location. Which means the application cannot give them a distance to the restaurant.

4.8 Epic 4 – Contact Us Function

4.8.1 User Stories: User

As a user I want to be able to contact GF|Dublin in case I have a question to ask them about their application or to get information about their mission.

Acceptance Criteria 1:

- I. The user must go to the contact us page of the application
- II. The user is required to enter their email address
- III. Once a valid email address is entered they can use the text box to send their question
- IV. The user can then enter text into the text box. Minimum character count is 30.

Acceptance Criteria 2:

- I. The user must go to the contact us page of the application
- II. The user cannot use the text box if a valid email address (eg: forgetting the '@' or domain) is not given

- III. The user will receive an alert on their screen if they try to use the text box without entering a valid email address.

Acceptance Criteria 3:

- I. The user must go to the contact us page of the application
- II. The user is required to enter their email address
- III. Once a valid email address is provided they can use the text box
- IV. If the user does not enter at least 30 characters into the text box, they cannot send their email
- V. If the user tries to send their email with less than 30 characters they will receive an alert message on their screen saying they must meet the minimum character requirements

4.9 Epic 5 – Save Favourites Function

4.9.1 User Stories: User

As a user I want to be able to save my favourite restaurants on the application so I can check any menu updates when I'm going there for another meal.

Acceptance Criteria 1:

- I. The user must go to the map search page of the application
- II. Once the user has selected their restaurant they can select the bookmark icon
- III. An alert will appear on their screen asking for permission for GF | Dublin to have access to storage media
- IV. Once the user agrees the restaurant is saved to their favourites.

Acceptance Criteria 2:

- I. The user must go to the map search page of the application
- II. If the user does not select a restaurant they cannot bookmark one.
- III. They can choose to view previous bookmarked restaurants

Acceptance Criteria 3:

- I. The user must go to the map search page of the application
- II. Once the user selects a restaurant they can select the bookmark icon
- III. An alert will appear on their screen asking for permission for GF | Dublin to have access to storage media
- IV. If the user disagrees, another alert will appear on their screen informing them GF | Dublin cannot bookmark this restaurant without access to their phones storage.

4.10 Epic 6 – Performance

As a user I want to be able to open the application so I can use all the features that are available to me to help me find a suitable place to eat to cater for my dietary requirements.

4.10.1 User Story - User

Acceptance Criteria:

- I. The user must open the application
- II. Once the application is open the are to use any feature of the application without the need to register or log into anything
- III. The application search function must work with and without the location services turned on.
- IV. The response time for all features of the application must be no longer than 3 seconds.

4.11 Epic 7 – Availability

This epic refers to how reliable the application will be to the end user. The application will go through vigorous testing phase to ensure the best result from each function and feature. The application must be reliable and also me the acceptance criteria outlined above.

5.0 Appendices

5.1 Monthly Report Journals

September

During the month of September, I spent most of my time coming up with an idea to base my final year project on. I went from an idea focusing on the Students Union of NCI for a week or two. This would be a worst-case scenario as I was never really involved in the college social aspects. Plus, gathering requirements from students is extremely difficult according to my lecturers and from my own personal experience. My classmates and myself were guilty of ignoring those emails from 4th years who were looking for student to complete short surveys, I didn't want to put myself in that sort of position, so I had to go back to the drawing board. The project pitch came up faster than I could come up with a new idea, so I had to pitch the Students Union application which I knew the reviewing lecturers wouldn't like. But I had no plan on going through with it honestly.

October

In early October I came up with the idea of Gluten Free Dublin. I came up with it as I was out with my friends and we were looking for somewhere we could go where I could eat something. It hit me then that if there was an app this would be easy. Hence, Gluten Free Dublin was born. Once I pitched this new idea to my assigned supervisor, Ron Elliot, I was given the green light to proceed with the project and begin working on how I could research the requirements and what path I could take with it. Toward mid-October I contacted the Coeliac Society of Ireland requesting if I could come in for a quick interview to just to ask a few questions and talk about my project idea. The email I sent to them is below.



David Gray <davegray1994@gmail.com>

Oct 22 ☆



to info ▾

Hello,

My name is David Gray and I am a 4th year student studying a BSC in Technology Management at the National College of Ireland. For my final year project I am required to write up a Requirements and Specifications document for an application.

My idea is to do this on an app based on Coeliac Friendly restaurants around Dublin City Centre.

Similar to the potential Food List application, my application will show on a google-map style the restaurants around the city centre that can cater to a customer with coeliac disease. Personally, as someone with coeliac disease, I find it difficult to go out to a restaurant because (even though it has improved in recent years) it is still difficult to find a place that can cater for me. An application would make it easier and faster to find a suitable restaurant. I plan to show the name, location and full menu of the restaurant.

I'm contacting you because I will need to gather some stakeholder and end user requirements and specifications by sending out a questionnaire via a google form. In order to do this I would appreciate if I could meet with you with a view to conducting an interview about requirements and specifications. I also am planning on meeting with restaurants around the city to ask about their interest in being featured in the potential application.

I hope that you will be able to assist me in this phase of the project and I look forward to hearing from you.

Thank you & Kind Regards,

David Gray

They responded to my email after 3 days and agreed to meet me on the 8th of November. This was great news of course and I was looking forward to it. I was told I was going to meet the person who responded to my email David Cooney and, if he had time, the CEO Fergal O'Suillivan.

November

During the month of November, I had the interview with the Coeliac Society. After this interview which the CEO attended after all I had a clearer idea of what they would like to see from an application of this nature and what they would expect it to do for them as well as their members. A key element that I expected them to agree with was for it to be revenue generating using ads. I was curious to see if maybe people would pay for it, so I am going to put that question into the survey just to make sure they aren't missing out on another source of potential revenue. I have written up some draft survey questions to send over to the society. I plan on having these complete before we finish up for Christmas, so I can gather results over the break. I'm hoping to get over 100 results from the survey as their Facebook page has 15,256 likes, of which, 14,968 people follow. Saying I will get 100 responses is probably a conservative estimate. But I can gather enough information with their assistance which I am delighted about. The more responses I get the better. It gives me a more accurate idea of what the real end users of the application would expect from it. It would also show me how many people would actually be interested in the application itself. I could read the Facebook comments as well to get some extra feedback from the users who completed the survey and potentially work around some ideas if possible.

December

For the month of December, I focused on brainstorming. Any more stakeholders that I could add to my list or any new ideas that could benefit the end users of the application. I completed a brainstorming session with colleagues from my class and I asked a cousin of mine who is also coeliac to discuss the idea with me over the phone. These sessions proved to be very beneficial. It gave me

an insight into what others may think about the application idea and I could use those insights to benefit the application idea. Also, in December was the midpoint presentation everyone in 4th year had to do. This was a particularly stressful time in the year as none of us had ever had to present on something we were only just grasping to understand. One minute you'd think you're doing it right then next minute you think you're doing it wrong and should completely scrap it and start over. I had Eugene O'Loughlin and Ron Elliot as the graders for my presentation and I was asked appropriate questions given the quality of my presentation. I left out some vital parts that I overlooked, and I didn't have great information at the time to back up the claims I was making. The experience though as a whole, taught me that if you don't know what you're talking about you're going to get grilled. It was all a completely new learning curve and I took what I could out of it and put it to good use. Towards the end of December, I had to put advancement on the project on the back foot to focus on my upcoming exams.

January

January started off with me completing my exams for the first semester of 4th year. After the completion of these exams I began to fix any errors I had in my midpoint presentation document. I had written the entire document in first person which didn't sound as professional as the document should have been presented to the examiners. It is also better to do this at the earlier stage of the project instead of the late stage of the project. Once this was completed I began working on choosing the appropriate questions to send out in a survey for end users. This took a lot longer than I thought it would. If the questions weren't accurate enough to find specific requirements or needs from the data, the users have given the survey would become useless. I continued working on creating the survey questions for the course of the next two months. I also put together a short questionnaire to send out to various restaurants around my local area. I know the current owner of Lalis restaurant in Portmarnock and know people who work in one of the restaurants in Malahide. The plan is to bring that into them as soon as my lectures are finished so they can fill it up and I can conduct a brief interview with them.

February

In February I began to work on creating a website for Gluten Free | Dublin. To do this I used a free website builder known as WordPress. WordPress is a free online service that allows its user to create websites and design them to their liking so that they can advertise their product or service to the world. I wanted to create the WordPress site to give people a view of what I want the idea to become and how it can benefit people who are in search of a restaurant that can provide gluten free meals. Although I did not fully complete the WordPress site in February I planned on continuously working on it throughout the course of the second semester.

Toward the end of the month all 4th year students had to get their pictures taken for the project showcase. The fact that it was only February and people were talking about the showcase began to put pressure on us all that in only 3 months we would have to have all this finished. But we all had other CA's to complete as well but I think I handled the pressure well.

March

In March we had to create our Showcase profiles. We learnt how to do this from Eamon Nolan who was the lecturer for our project class. In the profiles we had to include everything that was used for

our projects. We also had to include a brief summary of our application idea which could be a maximum of 50 words. Also included on the showcase profile was the pictures that were taken back in February so that potential employers coming to view the showcase could put a face to the name so to speak. I was also told that my boss from the placement I completed in McCann Fitzgerald for 8 months would be attending, so I was happy to hear that. I hope to return there once I finish my degree. To prepare for the showcase I also had to begin to create a poster. I unfortunately didn't have time to start properly in March, so I just spent time creating the logo for Gluten Free Dublin. I found that the text logo suited best, and I am going to go with the logo being just 'GF | Dublin' as it stands out more to the eye. The interview with Lali's restaurant and Bunsen Burger was also conducted in March.

April

April came around pretty fast and the pressure was really beginning to build up on everyone in the class. Those of us who thought we were on top of things really weren't that on top of anything at all. With finishing off the project as well as having to study for the final exams that were occurring only a week or two before the project had to be handed in, everything was hitting us at once. The main thing to do in a situation like this is just to try keep a level head. Get as much work done as possible during the day but also take some time out to get outside for some air. Going for walks with my dog helped me stay focused and relaxed in this most stressful time of my life by far. Regarding working on the project, I felt it was time to really begin finishing it off. I didn't want a big rush after the exams to get it finished. So, I decided for around 5 days to get an average of 500-800 words down a day. Then begin studying for the exams. Once the exams are finished I won't have a massive amount of work to do come the end of the year when the project is due on the 13th of May. I felt confident in my ability to achieve and stick to this plan as in my opinion it was the best way to get the best results from both my exams and my project. After the exams were finished I got straight into the project. I felt the exams went really well and I feel I passed both of them. Once I got started with the project properly everything just started to come together. The approach I had towards the document began to have structure and a plan. I knew what had to be done and how I was going to complete it

May

For the month of May, I focused on completing each section of the document extensively. The gathered survey results and other requirements were analysed and prioritised. The table of contents page was completed. I previously didn't actually know how to do this so I had to look it up. When I completed the table of contents it gave the document some well needed structure and also made it a lot easier to navigate from page to page. The endless scrolling up and down was driving me mad. Wireframes were created, and the use case diagram was also done in this month. The licence for balsamiq was apparently out of date for the college so I had to download the balsamiq mock up maker on chrome to create my wireframes. It was the exact same as the desktop version so I didn't need to learn a whole new way to create wireframes. To create the use case diagram, I downloaded the free version of Visio that the college provides to students via the Moodle portal. I was so happy to find this as I am used to using Visio for creating data flow diagrams and use case diagrams so again I didn't need to learn a new piece of software to complete the tasks. I then began to complete the IEEE standard application requirements specification section of the document. This involved completing Epics, User stories and the various acceptance criteria that were associated with them. I had a brief skim through the actual IEEE Standard document just to get a basic understanding of exactly what it is

so I could continue working with the section in confidence. Once the document was complete I began to go through the document to ensure there were no spelling or grammatical errors. Formatting was finalised also. I'm well used to formatting documents because I've always done it for team projects through the 4 years in NCI. It's something I enjoy doing, making things look neat and structured. I then began working on the poster for the project showcase which is on the 30th of May. To create the poster, I logged into the virtual desktop (Citrix) at home so I could use the Adobe Fireworks software. I had to look up the size of the A1 poster, so I could create a canvas in fireworks that would fit it without being too pixelated. Once this was completed I began to work on my WordPress website for the application. We had a workshop with Sam Cogan during the year on how to use WordPress, but I needed refresher training in order to complete it again. I watched various YouTube tutorial videos until I found one that would meet all the criteria I expected from the website. Then I went step by step with the video to ensure I got everything correct and made sure the website looked professional enough to show potential employers at the project showcase. I plan on showing visitors to the showcase my presentation and website on my own laptop. For the presentation I'm decided to use the same format PowerPoint document as used for the midpoint presentation. I decided to keep the same styling and colour scheme throughout it but just change the actual content. This presentation will also be shown to my project supervisor Ron Elliot and the second marker on the day of the presentations.

Once the website was completed I uploaded everything to moodle.

Here is the link to the website I will be showing people at the showcase

<https://davegray1994.000webhostapp.com/>

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