



QueLess: An application for avoiding queues

IEEE Website Requirements Specification Document

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- The requirement that a student to attend additional or other lectures or courses or undertake additional academic work.

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1.0 Introduction

This project will be a software requirements specification (SRS) document for an application named QueLess. The application in question is one that will allow the user to search various shops, bars, gyms and other public places to see how busy they are in order to help them avoid overcrowded places and more efficiently go about their day and plan their schedule for the day. The aim of this project is to gather, analyse and document the requirements necessary for the creation of this mobile application. In order to gather these requirements there will be a large amount of interaction with stakeholders in order to elicit requirements and valuable feedback and information. The elicitation techniques used will be the most prevalent and effective ones used by business analysts around the world, and will predominantly come from the Business Analyst Book of Knowledge (BABOK). Throughout the project BABOK will be consulted on various issues, but in particular, requirements gathering.

The techniques that will be looked at in order to elicit requirements from stakeholders will be Brainstorming, Surveys, Interviews, Focus Groups, Prototyping, and possibly more if the need arises. The brainstorming sessions will be conducted with a few members in groups of around 5 people who will all be allowed to speak freely and give ideas. The survey will target a much wider group, and will be initially aimed towards the student population as they are the main target market for the application. Interviews will take place with around 3 stakeholders of some of the different types businesses that could potentially benefit from the application, such as gym, restaurant, shop.

1.1 Business Need

The need for this app I believe comes from the fact that in general people are becoming busier and busier across all walks of life, be it work, college, family or other commitments that will have them running from A to B trying to get everything done. Because of this time is precious, and any time that can be saved and used for a person's priorities will be of value to them. Having to wait in queues in shops and other establishments is an unnecessary delay in people's lives. As well as this there will be places where people will meet up to socialise such as bars, cinemas and eating establishments which can easily become overcrowded and unpleasant environments to be in. If people have agreed to meet at a certain place, or someone just needs to do the shopping in between other duties during the day, there is no real way to check how busy these places are so that people can better plan their day.

For example; Where someone will be rushing to collect kids from school, only to find the supermarket they have gone into is very busy and there is a long queue, making the parent late to collect the kids and bring them to other activities they are involved in. This could have been avoided and a more appropriate shop chosen had there been an app available with such information. Also if people agree to meet at a certain place such as a bar in town, not knowing it is very busy and difficult to find seating, move around, and find friends it can be a frustrating experience. Being able to see which establishments are busy and which are not would allow people to better plan their time.

I will need to go and elicit requirements for this project to expand on my own initial ideas for the app and to see what potential users of the app would like to see included, and how participating businesses would like to see the app work in relation to them. The ideas I have at present consist of an app that gathers real time information from businesses such as shops, bars, gyms, cinemas, restaurants and any other places where people would tend to go on a regular basis. They will provide information to the app on the number of people in the place, wait times, expected patterns

of busyness for the day. The app will give other information such as alternative places to go if too busy, estimated patterns for the day, deals and promotions in places subject to times. Many more requirements will come to the surface in the coming months as interviews and surveys with stakeholders are conducted along with other elicitation techniques.

1.3 Business Case

1.3.1 Promoters, Shareholders and Board Advisors

The current people involved in the starting of this business is the business analyst, Sean Rooney. Being that at present this is a final year college project and for the time being while not develop further than that, although the aim is that this document can be used as a template to go and actually make this business and app. At present Sean Rooney is the sole promoter and shareholder, and is conducting all the necessary work.

In terms of advisors, the only ones at present are that of lecturers and peers in college, in particular the Project Supervisor and Course Co-ordinator Eugene O'Loughlin, who is overseeing the work and helping to set goals to complete the project.

1.3.2 Products and Services

The application seeks to make day-to-day life easier for people, by reducing the amount of time that one spends queueing, and helps people to avoid busy public places. The background to this idea comes from time spent in and around college, noticing that at certain points in the day it just isn't worth your while going to a shop, food establishment or even the gym due to the fact that there will be so many people in these places and you will likely have to queue for quite some time. Being that as a student with lots of work to do, and as a person who just doesn't like queueing I try to avoid these times. I think most people would have a similar mind-set as no one really enjoys queueing, the trouble is however that without a proper way to check how busy a premises is, avoiding busy periods is left to some degree of guess work and you may find yourself queueing regardless.

The proposed solution to the issue mentioned above, and the main benefit of my application, is that you will be able to search your intended destination and check how busy it is before you set off, allowing you to make an informed decision on whether or not to go at this time, or wait for a less busy period. The app will feature a range of places that one can check, both in the city centre and beyond. The places to feature in the app will include shops, restaurants, gyms, barbers and hairdressers, bars, clubs, museums, libraries and many more.

The Unique Selling point of this app is that it has not been done before, it is a completely original idea that will have no other companies or alternative apps to compete with. This will ensure that total market focus will fall on QueLess, providing a large customer base to serve and avail of.

There are many advantages to the users of this app, customers who regularly use it will be able to have a more straightforward routine and more efficiently go about their day. People are extremely busy in today's world and may need to do things, such as going to the deli to get lunch, as quick as they can in order to resume the things of importance. QueLess seeks to eliminate the amount of time wasted on order to make life more free flowing and stress free. This application will also be ideal for the many people among us who suffer from things such as social anxiety, who would feel overwhelmed in crowded places and be at risk of having a panic attack or feeling unwell. It could

also be a great benefit to people with other disorders and disabilities such as people who or mobility impaired, who may wish to avoid busy periods.

It will also have a large benefit to the establishments themselves, many places have difficulty in coping with the surge of people at certain times, be it due to lack of space or lack of employees to serve customers, QueLess will allow for a more even distribution of customers throughout the day. This will take pressure off of staff, and managers who would have to deal with busy periods, it can also help to reduce the costs of a business as less employees will be needed at peak times, and it will increase spending during other periods of the day.

There are however some disadvantages to this app, as it will require participation from the establishments and their staff, as well as the customers who frequent it. Staff and customers will be asked to provide information to the app in real-time to provide more accurate data to be used in the app. There will also need to be some hardware installation in establishments as well as the use of software, this is due to the unique manner in which QueLess will collect data in real-time. Sensors installed in participating establishments will be able to detect periodic signals that are emitted from smartphones and mobile devices, this will then relay that information to be analysed, gathering the number of people in the shop along with other valuable information (mentioned below) then updating the app, giving with extreme accuracy the volume of people in the establishment.

In the future of the app, more data can be extracted through analytics in order to benefit the client establishments. This will include information such as how long people spend in the place, what areas of the business they go to and how long they spend in each section. This will allow retailers to see which areas are most popular with customers, thus being able to create a marketing or sales strategy based on this data.

1.3.3 Long Term Aim of Business / Objectives

The long-term aim of the business is to become a widely used name, an international company created from the use of an essential application. The idea that I propose, and the problem that QueLess solves is not hindered by boundaries of geographic regions, wherever there are large cities there will be a need for QueLess to solve the issue of overcrowded establishments and public places. The long term aim for the business is that QueLess will be used by millions of people, in ever thriving metropolis. The need to learn more about customer behaviour is another problem that is not confined to one particular place, and another solution that QueLess can solve internationally. It is also the goal that as well as "QueLess" the business will have produced other useful applications for people and businesses alike. There are many issues in today's world that can be solved through the use of technology, it is our goal to create solutions to these whatever the problem may be.

Short term objectives of the company have been identified and there are a number of actionable results wished to be seen within the next five years. Within the first 2 years it is necessary for the application to be completed and ready for rollout, in no less than a beta version. It is key that the app be released as soon as possible as the technology sector is constantly changing. By the end of the third year, after a large marketing and advertisement campaign we wish to see quite a large customer base. In the 4th and 5th years the focus will be on taking the application outside of Dublin, creating a strong presence in the other major cities of Ireland, and making inroads to implementation in large towns and cities in the UK and throughout Europe.

1.3.4 S.W.O.T Analysis

Strengths <ul style="list-style-type: none">• Unique Idea• Not many staff required• Flexible in Design	Weaknesses <ul style="list-style-type: none">• Co-operation Needed• Hardware Installation• Constant Analysis of Data
Opportunities <ul style="list-style-type: none">• Large Target Market• Monopoly of Market• Ample Technology	Threats <ul style="list-style-type: none">• New Competitors to Market• Substitute Product Development• Change in Technology

1.3.5 Market Analysis

Target Market

The target market that QueLess aims to serve is a relatively large one, in the sense that it is not restricted by geographic regions or even demographics. The problem that this solves is one faced by people of all ages, race, and gender, in cities around the globe which thus makes them potential customers. The same goes for the clients, or establishments who will be using our services to gain greater insight into customer behaviour, being able to better understand customers is a goal of companies and business' globally.

However it may be too broad a prospect for the initial phase of the business to have such a large target market, so for the purposes of simplicity a specific target market will be selected for the time being. The initial start-up will be based in Dublin, thus too will be its target market, being that I am in the age group 18-34 and I better understand their buying habits this will be my initial target group. This encompasses people of both Generation Z and Generation Y (millennials).

However this is not the only reason I have chosen this demographic, as studies have proven that "Generation Z" (the oldest bracket of which is aged 18-24) is the most impatient. They have even surpassed the millennial age group as the consumers with the shortest attention spans, and also the highest tendency to ring up businesses looking for information. Being that they are natives to digital platforms able to take in information quickly from multiple sources they wish to have both online and offline methods to reach businesses such as phone calls, texts, email, social media, and even in-call visits.

A study by Marchex, an advertising analytics company, found that 60% are more likely than others to hang up a call if it is not answered within 45 seconds, and that 30% are more likely to become verbally annoyed if they feel that their needs are not met. This data would imply that the new generation of adults want quality service without having to wait, this profile falls directly in line with that of the kind of customer we wish to attract to QueLess.

The same traits of impatience can be seen in the millennial generation, those born from the mid 80's to mid 90's or early 2000's, in other words roughly 18-34 year olds. Many other businesses and industries are coming up with solutions to satisfy this impatient needs, for example many companies now offer same-day-delivery for online purchases, apps like Hailo which eliminate having to wait for

a taxi, and websites such as Netflix which provide whole series and movies at the click of a button. The target market for these is roughly the same as QueLess, reinforcing the ideals we have.

It is also these two generations, Z and Y, who have the highest online and mobile device usage. It isn't difficult to see either, with people between the ages of 18-34 constantly using their smartphones, this bodes well that they will be most likely to use an application such as QueLess thus should be the primary target audience.

Emma Taubenfeld, P. and Emma Taubenfeld, P. (2018).

WIRE, B. (2018).

Target Market Valuation

Being that QueLess is a unique idea there is no valuation data readily available so it is quite open to interpretation. Seeing that we tailor to a range of businesses we will use the numbers of these for a basis of evaluation, for example there are approximately 400 restaurants in Dublin, and over 900 pubs with approximately 740 of these in the city centre, and 140 nightclubs. There are approximately 250 gyms in Dublin, 200 barbers, 40 museums, and literally a countless number of shops that is no doubt in the thousands. These are all establishments that can avail of QueLess, and many more. There is approximately 570,000 people living in Dublin, with close to 1.9 in the greater metropolitan area, these are all potential customers and users of QueLess.

Of course these figures are strictly relative to the market in Dublin, this figures will rise considerably when other cities are factored in, and of course international markets as this application can be used in cities all around the world. The potential for QueLess reaches wherever there is a busy metropolitan area. Worldpopulationreview.com. (2018).

Market Trends

As mentioned previously, the population of Dublin is on the rise, a trend which can be seen in most major cities throughout the world. As well as this there are an increase in the number of businesses opening due to most countries having recovered, or in the process of recovering from the global financial crises. Another trend, which was mentioned above in 4243 Target Market, is that people are becoming more and more impatient, this is particularly noticeable among younger generations. It has been suggested that this impatience has arose due to an abundance of technology, meaning things can be done a lot quicker than in previous decades, often at the click of a button. This trend does not show any signs of slowing down, meaning there will continue to be a niche to which QueLess can cater to.

Profile of Competitors

Having searched using different methods online, QueLess falls into a unique position, there are no other apps or software systems that do what we aim to achieve. The closest thing that comes to QueLess is the 'popular times' suggestion that sometimes appears when you search a place with Google. This however isn't widely available for different establishments and does not provide information in real-time as standard. Other competitors could include apps and businesses that put you into a virtual online queue such as QLess (an appointment scheduling and queue management system), or one that allows you to pre-order meals such as Bamboo.

There are no systems readily available to download that can give you real-time information on how busy a premises is, or one that can track customer behaviour in the store and relay that information

to and turn it into useful data and display it to management. While there are advantages to the competitors' products they would not pose a particular threat in the marketplace, Bamboo would be a possible threat as it allows customers to skip queues and get their food without having to wait, however being that it only tailors to food establishments and cafes it would not pose a threat in other aspects on which QueLess would provide information such as gyms or shopping centres.

Competitive Advantage

QueLess has total a market share, as mentioned above there is very little in terms of competitors. Once the app is up and running, along with the back system to provide data to partner establishments it should be quite easy to capitalise on the market. Guaranteed it will take some time to get all of the potential partners on board and for the application to catch on with the public. This will be overcome once the number of participating establishments and the customer base begins to grow, it is very easy for word of mouth to spread and along with a strong advertisement campaign.

QueLess will be free to download for customers, providing them with a unique service by simply having to download the application. Ideally it will be available on for Android and iOS at the same time so as not to exclude and potential customers. In terms of use for the business, if they wish to avail of the data analytics services offered by QueLess to help understand customer behaviour, they will need to pay a small fee for the installation of the software and then monthly payments or an annual fee for information they will be receiving.

Benefits to Clients

Businesses that wish to avail of the data analytics services provided will be able to have a greater insight into customer behaviour, being able to see buying habits and patterns, which sections attract the most customers and which have the highest rate of impulse buys, how long on average customers spend in-store and in each particular section. The data provided goes far beyond a stores traditional metrics of counting stock and looks to find the roots of how, what, where and why customers buy what they do. Having this insight will enable businesses to tailor marketing and advertising, design better products and branding, and ultimately boost customer satisfaction to gain repeat business from customers.

It will also mean that by having the number of customers spread more evenly throughout the day, by them being able to see when it is and is not busy, that it will relieve stress on staff and it will actually prevent customers from leaving the establishment. According to a study in the Irish Examiner, we spend on average 17 minutes each day standing in line, or 23 minutes if you live in Dublin. The study also says that after 11 minutes of waiting people begin to get impatient, and after 29 minutes this will escalate towards an aggravated physical outburst.

An extract from the article reads: *Vice president of Visa Greg Twitcher says Irish people are becoming so tired of queuing that they are finding other ways to get their shopping done.*

Mr Twitcher said: "Everyday people feel so much pressure on their time that 70% are prepared to walk out of a shop if the queue is too long.

"There are now more options for shoppers and increasingly people are selecting ways to make their shopping experience easier." Irishexaminer.com. (2018).

The customers who use the app on a daily basis will essentially be able to make their life less stressful, more productive, and have more time to relax. Being pushed for time is a feeling that the

majority of people feel quite regularly, this stress can lead to a variety of health issues such as anxiety, depression, and high blood pressure. Whatever the reason is for rushing about, be it work or family related, there are many aspects outside of this that contribute to that stress such as waiting in line, knowing you have something important to do or somewhere to be.

A study by the British Telegraph shows that people spend an average of over 5 ½ hours queueing each month, the biggest of this was time spent queueing in the supermarket. On a larger scale this amounts to 67 hours, nearly 3 days wasted in queues annually. This amounts to 169 hours, or nearly 6 months in a life time. This is all time that could be drastically reduced, allowing people to get to the important stuff that needs to be done, and spend more time with their families and friends, having a happier and less stressful life. Telegraph.co.uk. (2018).

1.3.6 Marketing/Sales Strategy

Income Sources

The revenue for this venture will be gained through several means, primarily through in-app advertising for various businesses and companies. Revenue will also be taken in from establishments that wish to avail of the analytical services that may be provided, there will be a small fee for the installation of the necessary hardware and a monthly set price that will be charged to the companies for the data provided.

The money taken in through these means will be used to continuously improve the application and the analytical software and services that will be used to maintain and increase customer satisfaction of both the companies and their customers, who make up our customer base.

Marketing Strategy

As mentioned previously the primary market segment to be targeted will be that of millennials and in particular, students. Once this niche has been successfully captured the marketing team can branch out and attract the various other target groups that will make up the customer base for the business. Through short and personalised advertisements aimed at the target groups it is expected that there will be a large interest in the app and so on of the marketing campaign.

There will be brand ambassadors that will go to fairs and student activities to generate further awareness for the company, and also a spokesperson that will work with business clients of prospective partner companies to attract them to the business.

Pricing

The application will be free to download for users, but for companies that use the service and data provided there will be a fee of between 300 – 800 euro for the installation of the hardware, with a monthly cost of 200 euro for the analytical data services. There can perhaps be better deals struck for long term contracts with partner organisations.

Advertising and Promotion

The main strategy undertaken to promote and sell the application to customers will be through advertisement both direct and indirect. The promoters of QueLess will work with other creators of applications to have in-app adverts promoting QueLess, also through Google services such as advertisement on YouTube. There is also the option to have physical advertisements in locations

throughout Dublin, and in the establishments which cooperate with QueLess and provide necessary information that the user then can avail of.

A direct approach will be taken for the establishments that will be collaborated with, a representative from QueLess will approach a relevant member of staff within the organisation and explain to them the benefits of the application and software and the ROI it could bring to them if they were to become a partner company.

1.4 Stakeholder List and Power/Influence Matrix

- Project Manager
- Business Analyst
- Managers/Staff in participating businesses
- Users of the app
- Developers
- Data Analysts
- Domain SME's
- Implementation SME's
- Real Time Information (RTI) SME's

	High	
Importance	Data Analysts Domain SME's Implementation SME's Real Time Information (RTI) SME's	Project Manager Business Analyst Developers
	Staff of businesses	Managers of businesses Users of the app
	Low	High
		Influence

1.4.1 Power/Influence Matrix Explanation

The project manager, business analyst, and developers are in the upper right quadrant as they will have the most influence into the project and are of the most importance. The managers of businesses which QueLess is aimed at, and some of the potential users of the application are in the bottom right quadrant as they have a high influence as these are the people from whom requirements are gathered. The data analysts and various SME's are in the top left quadrant as they are of great importance to the application, but will not have much influence into it. Staff of the participating businesses are of least importance and have the lowest influence, thus they are in the bottom left quadrant.

1.5 Requirements Elicitation Techniques

1.5.1 Brainstorming

Brainstorming will be a beneficial tool in the early stages of this project in order to get opinions and points of view from different stakeholders. Gaining feedback, suggestions and thoughts from people will allow for new ideas of features for the application to be generated which can then be turned into further requirements.

In order to conduct the brainstorming session, there will need to be a number of stakeholders to take part, a time that suits all of them, a suitable place to conduct the session, necessary materials and a possible agenda for the session. When all this is confirmed then the brainstorming can commence. The ideal location in which to gather the stakeholders will be an office or a classroom or boardroom. Somewhere with enough seats and table space for everyone to be seated and write comfortably, if there is a whiteboard present this will also be very helpful to display things covered.

From the thought process of the various stakeholders and by evaluating and analysing the notes taken it will then be possible to elicit some requirements for the app and to be used in the project.

Participants:

The participants of the brainstorming will consist of four students from National College of Ireland.

Location:

National College of Ireland, room 2:04

Date of brainstorm:

Wednesday the 10/11/ 17

Time of brainstorm:

4:00pm – 4:30pm

Brainstorm guidelines:

- Everyone is allowed to speak freely, with no interruptions or judgement
- There should be no distractions, eg mobile phones, laptops or other devices switched on
- Participants should not discuss ideas previous to the brainstorming
- If participants feel they can contribute to a previous idea positively they should do so

1.5.2 Survey

A survey will be created, distributed and filled in by various stakeholders in order to elicit requirements for the app. The survey will help to get a better gathering of what stakeholders, and predominantly users of the app would like to see included and get useful feedback. The questions that will be included will be questions of scale, in other words there can be no “yes or no” answers, this will maximise the information gathered and will allow me to elicit some important requirements.

The survey will be distributed by sending a link to the survey (completed on Google Forms) through the following, online methods:

- Email
- Whatsapp

- Facebook
- Other social media sites

Survey questions:

1) What age are you?

18-23

24-27

28-32

33-40

45+

2) What gender are you?

Male

Female

3) Which best describes you?

Employed full time

Employed part time

Unemployed

Student

4) Do you have a smartphone?

Yes

No

If so which platform do you use?

Android

iOS

Other (specify)

5) How often would you download apps?

Never

Not Often

Often

Very often

Always

6) How likely are you to pay to download applications to your smartphone?
1 being most likely, 5 being least.

1 2 3 4 5

7) How often would you find yourself queuing in a shop?

-2 times weekly 2-4 times weekly +5 times weekly Daily

8) If you use a gym how often would you find yourself queuing to use equipment?

-2 times weekly 2-4 times weekly +5 times weekly Daily N/A

9) When socialising, how often would you go to a place that is overcrowded? Eg
bar/club/cinema/museum. 1 being most likely, 5 being least. Specify which if possible

Never Not Often Often Very Often Always

10) How often would you find yourself in other public places that are over-crowded? (specify
where)

-2 times weekly 2-4 times weekly +5 times weekly Daily

11) How likely would you use an app that would allow you to view how busy a premises is?

Never Not Often Often Very Often Always

12) Would you like to receive notifications from the app if your local establishments are busy or quiet? 1 being most happy to receive notifications, 5 being least

1 2 3 4 5

13) Would you like to receive notifications from the app if your local restaurants have a last minute cancelation? 1 being most happy to receive notifications, 5 being least

1 2 3 4 5

14) How would you like to receive these notifications?

Via: Whatsapp Messenger SMS Email

15) Which method would you use to sign in?

Facebook Google Twitter Separate Account

16) How often would you find yourself on public transport that is over-crowded?

-2 times weekly 2-4 times weekly +5 times weekly Daily

17) Before using public transport how likely would you be to want to know how busy a particular bus/luas/train is) 1 being most likely, 5 being least.

1 2 3 4 5

18) How likely would you be to update info to the app yourself, regarding how busy a place is, to provide more accurate real-time information? 1 being most likely, 5 being least.

1 2 3 4 5

19) How comfortable would you be with the application using your location to provide better real-time information? 1 being most likely, 5 being least.

1 2 3 4 5

20) If the answer to the previous question was higher than 3 (least comfortable), would it make a difference if you could choose when the app uses your location?

1 2 3 4 5

21) Would you be more likely to use this application if there was a social media factor, eg a live comment section or forum where discussions could take place about the various participating establishments? 1 being most likely, 5 being least.

1 2 3 4 5

22) Would you like to be able to book/reserve a table or place in a given establishment via this app?

1 2 3 4 5

1.5.3 Interviews

Interviews will be conducted with several stakeholders for further requirement elicitation and to shed light on the project from a different perspective. Some stakeholders suitable to interview will be managers of supermarkets, gyms, bars, eating establishments etc. In order to conduct these interviews, the stakeholders will need to be contacted separately and agree a time and place to hold the interview, gather the necessary materials needed and prepare questions. Being able to interview managers of businesses that QueLess aims to work with will provide a more rounded view of the application, allowing to see it from a different standpoint and to gather requirements therein.

Interview questions:

- 1) Do you find that your establishment becomes overcrowded? If so how often?

- 2) If the answer to the previous question was “Daily”, can you elaborate on this, for example if it occurs more than once daily?

- 3) Does this cause unnecessary pressure on staffing requirements and or budget, please elaborate?

- 4) In your opinion does the establishment being very busy reduce customer satisfaction, and for what reasons?

- 5) If there was an app that could provide real time information to customers on how busy your establishment is, do you think this could benefit your business and how?

- 6) Would you like to be able to upload your own content to the app regarding your busy periods? For example if there are delays due to a staff member out sick

- 7) If there was a comment section, forum or private messaging for customers to get in contact you would you be willing to comply (if so in which manner) or stick to traditional methods?

- 8) Would you like for customers to be able to upload information on your business? For example if there were particularly short or long queues

- 9) Would you like to see users log in through a specific account for the app, Facebook, or Google and wht?

- 10) Would you be willing to offer users of this app special discounts or offers? Eg loyalty points, give an example if possible

- 11) Do you think any of the following options would be of use to your establishment, please specify:
 - Providing data on how long each person stays in your establishment.
 - Knowing where in the establishment they went to.
 - The amount of time they spent in each section of the establishment.

Interview 1

Participants:

Sonia, manager of SV fitness gym

Location of interview:

SV fitness, National College of Ireland

Date of interview:

Friday the 12/01/18

Time of interview:

11:00am – 11:40am

Interview 2

Participants:

Jamie, manager of Milano (Italian restaurant)

Location of interview:

Milano, Dundrum town centre

Date of interview:

Saturday the 13/01/18

Time of interview:

12:00pm – 12:20pm

Interview 3

Participants:

Cian, manager of Dealz Nutgrove

Location of interview:

Quigley's Café, Nutgrove

Date of interview:

Sunday the 14/01/18

Time of interview:

10:00am – 10:40am

1.5.4 Focus Groups

For the focus group there will be a specific profile of people gathered to discuss further what requirements are needed. The focus group should focus on one particular area of the project in order to more clearly define direction and elicit techniques. Being able to narrow down the people involved to a targeted group will allow give better understanding on one particular area and narrow in on certain aspects of the project. Doing this across different profiles of people will give a more in depth and broader view and allow greater ideas to come through. To do this there will need to be a suitable place to hold such a meeting, for example an office or boardroom depending on the size of the group and have an agenda of things to discuss.

Participants:

The participants of the focus group will consist of 2 students from National College of Ireland.

Location:

National College of Ireland, room 1:05

Date of brainstorm:

Friday the 02/02/18

Time of brainstorm:

2:00pm – 2:30pm

Focus group guidelines:

- Everyone is allowed to speak freely, with no interruptions or judgement
- There should be no distractions, eg mobile phones, laptops or other devices switched on
- Participants should not discuss ideas previous to the brainstorming
- If participants feel they can contribute to a previous idea positively they should do so
- Ideas and conversation should be kept within the topic of the focus group
- If a participant has a good idea relevant to an area outside of the focus group topic they should write it down to discuss and a later stage.

1.5.5 Prototyping

There will be a low fidelity prototype created, this will be non-functional and purely to show as a representation as to what the created application could look like. The aim of this will be to show to stakeholders, and also to see which requirements may not be best suited for the application, and perhaps to elicit new requirements. The low fidelity prototypes will initially be hand sketched, then once an ideal design is created it will be made in the form of a wireframe using such a tool as Balsamiq. During the creation of the various drafts of prototypes, stakeholders will be consulted in order to get feedback and make any changes that may be requested.

Resources needed:

- Pen
- Paper
- Laptop
- Balsamiq software or other tool for designing wireframes

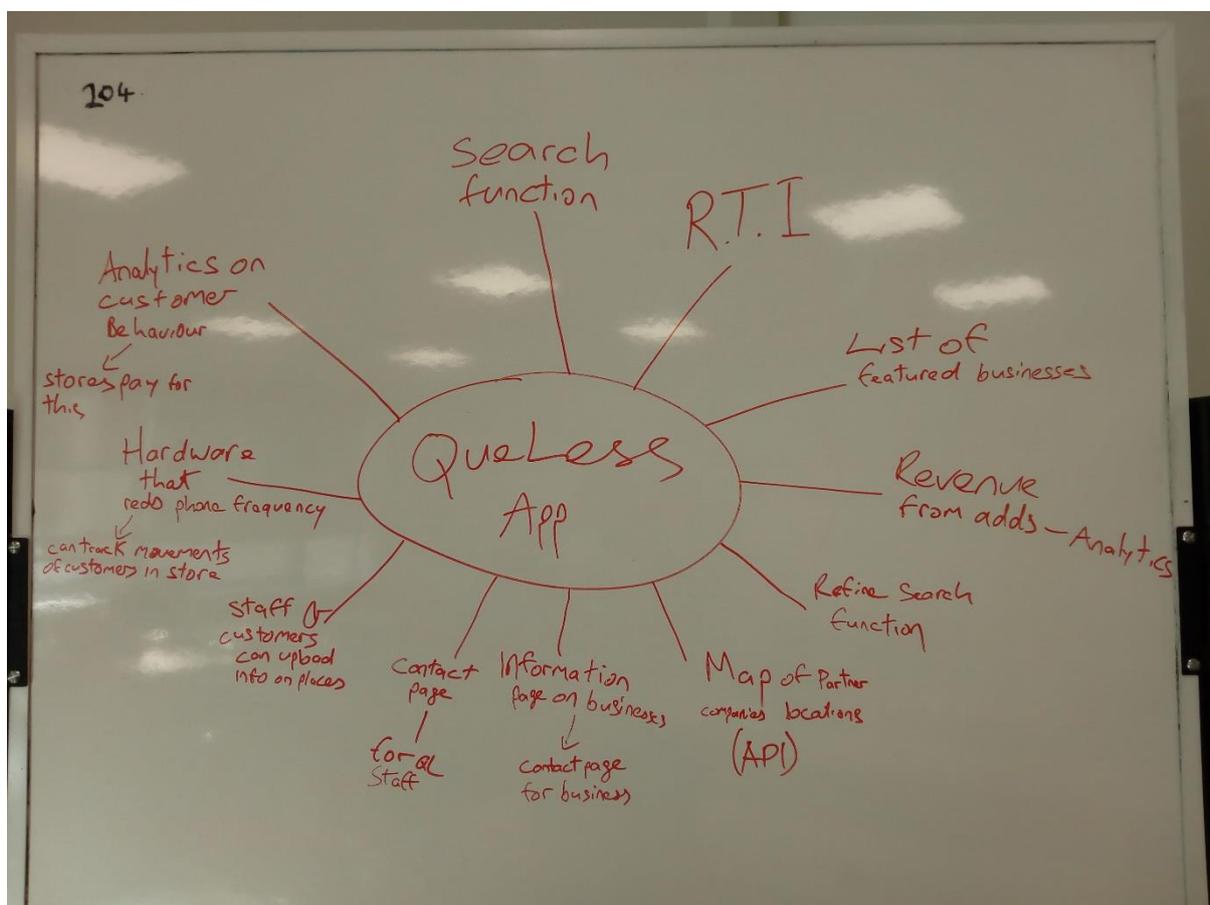
Participants:

- Business analyst
- Potential user of the application
- Business manager

2.0 Requirements Elicitation Results and Conclusion

2.1 Brainstorm results and conclusion

The brainstorming session was very beneficial in the planning process and allowed for many requirements to be elicited. The different views and ideas of the participants allowed for new aspects for the application to be thought of that previously had not been considered, and has greatly improved the scope of the project and what it entails. As well as new ideas and requirements being gathered it also helped to eliminate some options that had been previously considered, but were ruled out as not feasible or not useful. The brainstorm was conducted in a classroom and the ideas generated added to the white board, participants were allowed to write down ideas and refine them, and then changes were made to the board. For the practicality of the brainstorm the ideas put on the board were written in short descriptions, being discussed openly in further detail.



Results from the brainstorm

The participants of the brainstorm were able to identify useful features which result in the following requirements being gathered:

- A search bar into which the user can type the name of the establishment they want to search
- Refine search option – type of business/location etc
- Information on premises should be displayed in real-time
- List of businesses

- In app advertisement
- Responsive map with locations of businesses (API)
- An information page for each business
- A contact page for each business
- A contact page for QueLess
- Upload information page for app users
- Upload information page for business owners
- Receive data from users
- Receive data from business owners
- Receive data from in-store hardware
- Analyse data

2.2 Survey results and conclusion

The survey was made using Google Forms, it was then sent out to participants through a variety of online methods. Participants received a link to the survey through email, whatsapp, Facebook etc. Taking part in the survey was completely optional, the people who did so did so by choice. It was beneficial to see the data collected from this and was able to provide further insight into what the application should entail and who it should be tailored to.

The main participants of the survey were students (71.3%), the majority of people who took part in the survey were between 18 and 23, (57.7%), with people between the ages of 24 and 27 making up 23.1% of people surveyed. The application should be able to be downloaded from the play store and the app store, as the majority of people surveyed have either an android phone (42.3%) or an iphone (38.5%). The results from the survey show that people do find themselves queuing, and in busy places quite often, reinforcing the idea that this application will prove quite useful, with 34.6% of people saying they would use it often, 15.4% saying they would use it very often and 11.5% saying they would always use it.

Of the people surveyed 30.8% said that they would find themselves queueing in a shop daily, with 11.5% claiming they have to queue more than 5 times weekly, with 34.6% of people queueing between 2 and 4 times weekly. Being in a busy gym is something that is experienced daily by 26.9% of people, with 15.4% saying they queue for equipment in a gym 2-4 times weekly. Being in overcrowded public places is a daily occurrence for 34.6% of survey participants, with 7.7% more than 5 times a week, and 30.8% between 2 and 4 times weekly. Public transport is another place in which people find themselves that are overcrowded, 30.8% of people experience this daily, 15.4% over 5 times a week, and 26.9% between 2-4 times a week. A lot of people confirmed that they would like to be able to see how busy a bus/train/luas is before it arrives.

Some of the places that participants said they would find themselves that are overcrowded are shops, cafes, bars, Dublin city centre, Dundrum shopping centre, buses and bus-stops. The majority of people would be happy to receive notifications about how busy their local establishments are, and if they have cancellations for bookings. There is an even split in the way in which participants would like to sign into the app using either Facebook, Google, or a separate account for the app.

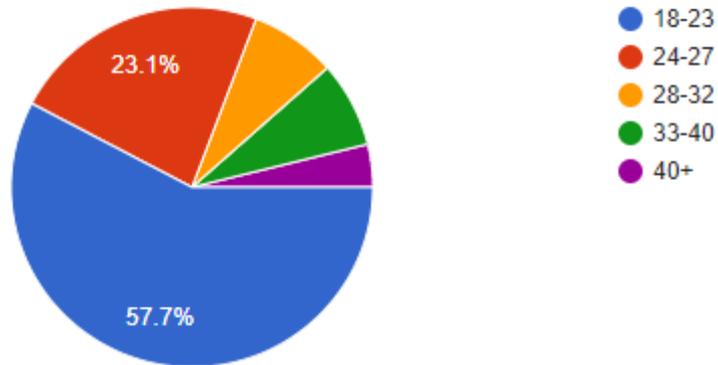
Half of the people said they would be quite happy to upload content to the app regarding how busy certain places are, this would help provide more accurate information to be displayed within the app. Over half the participants would be quite comfortable for the app to use their location to

gather better real-time information. Almost half of the people said they would be more likely to use the application if there was some sort of social media aspect such as a forum or comment sections.

From the data collected 46.2% of people said they download apps often, but with 34.6% of participants saying they would be very unlikely to pay for apps would suggest that QueLess should be free to download. The results of the survey questions are as follows:

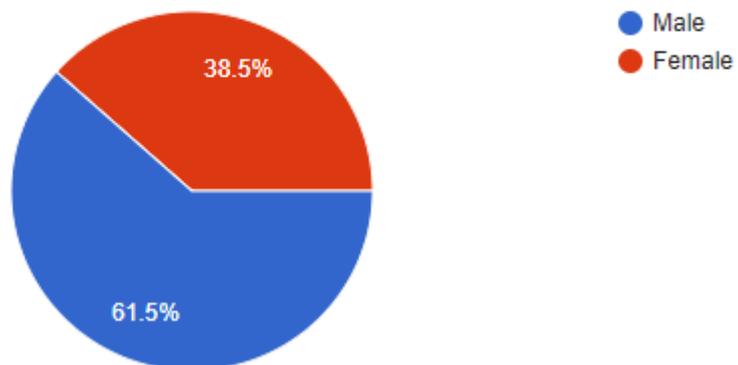
What age are you?

26 responses



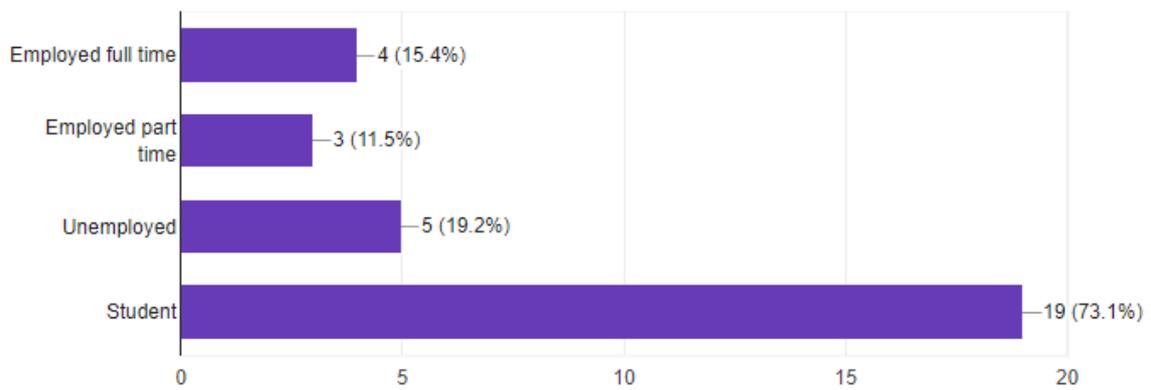
What gender are you?

26 responses



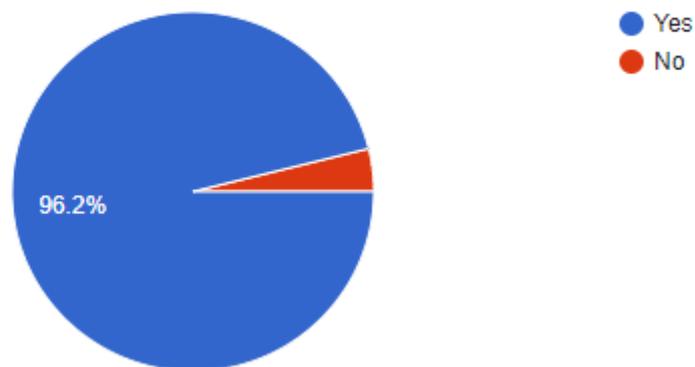
Which best describes you? (you can choose more than one)

26 responses



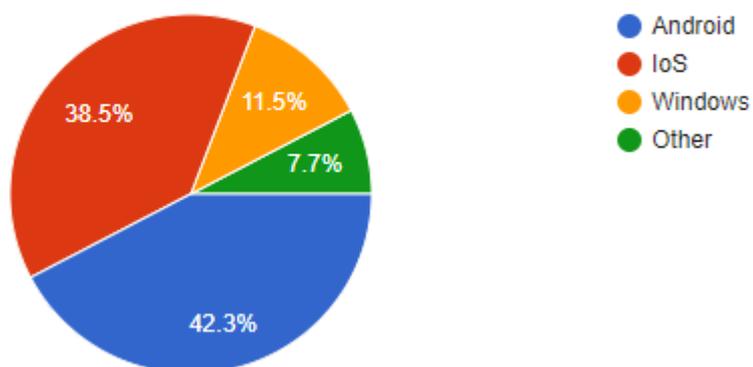
Do you have a smart phone

26 responses



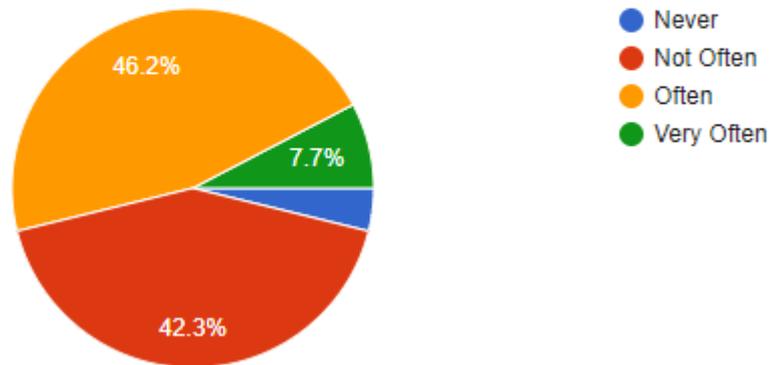
If so which platform do you use?

26 responses



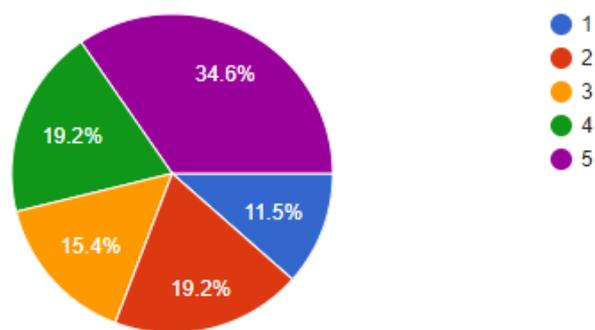
How often do you download apps?

26 responses



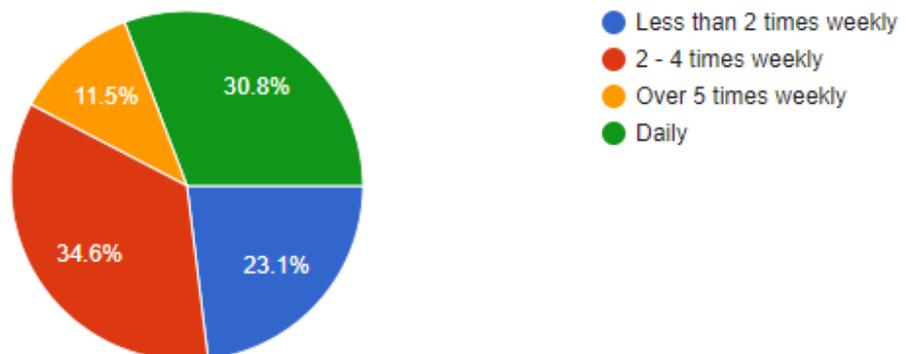
How likely would you be to pay to download apps? 1 being most likely, 5 being least likely.

26 responses



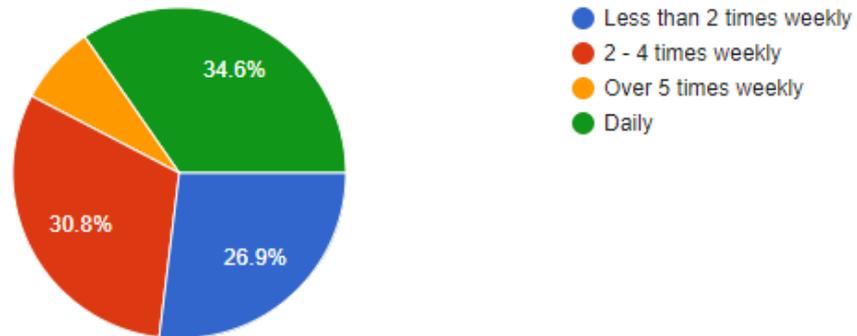
How often would you find yourself queuing in a shop?

26 responses



How often would you find yourself in other public places that are over-crowded?

26 responses



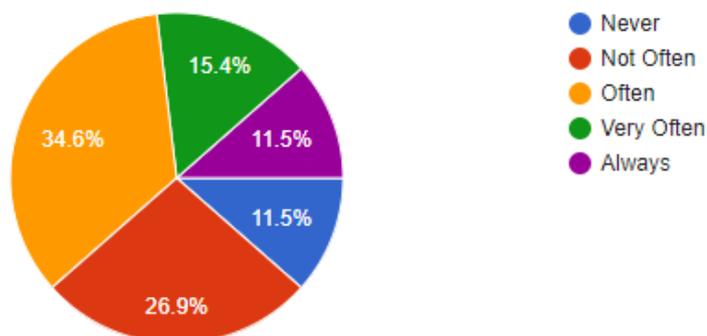
Could you specify the public place in the above question?

26 responses



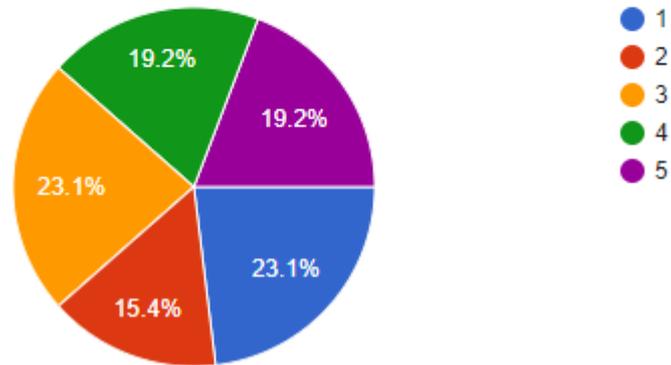
How likely would you be to use an app to view how busy a premises is?

26 responses



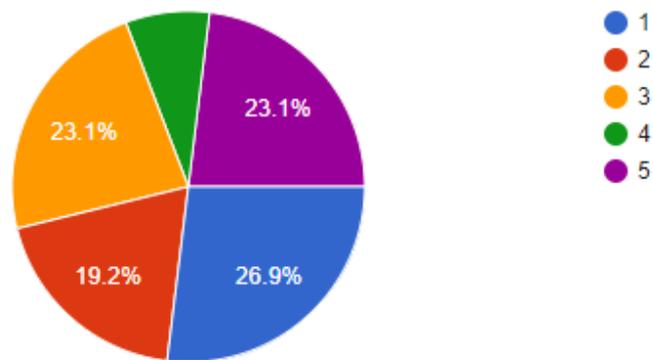
Would you like to receive notifications from the app if your local establishments are busy or quiet? 1 being most happy to receive notifications, 5 being least

26 responses



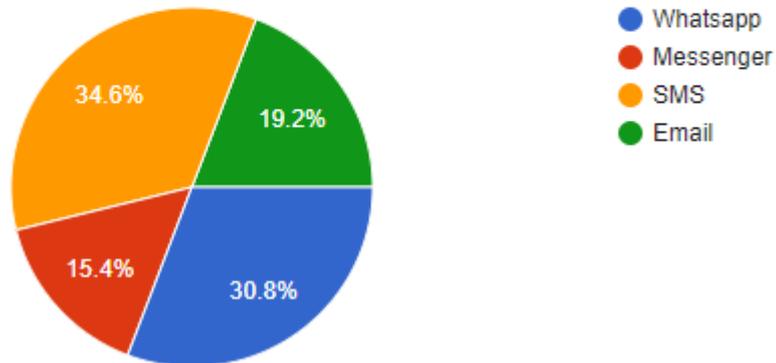
Would you like to receive notifications from the app if your local restaurants have a last minute cancelation? 1 being most happy to receive notifications, 5 being least

26 responses



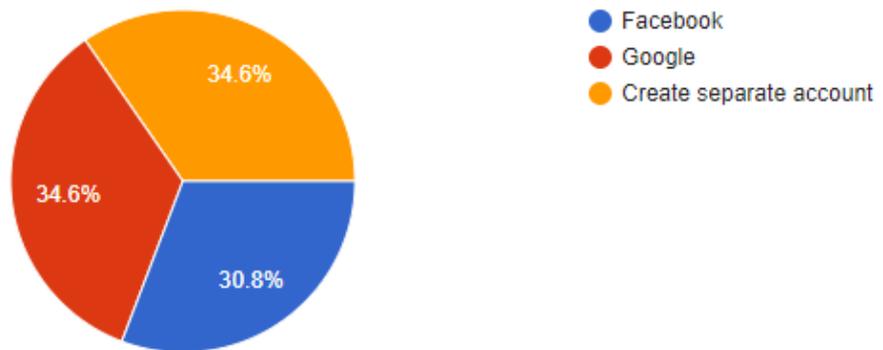
How would you like to receive these notifications?

26 responses



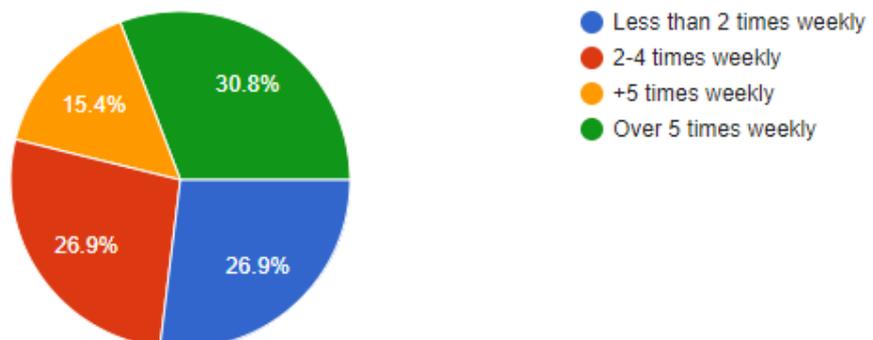
Which method would you use to sign in?

26 responses



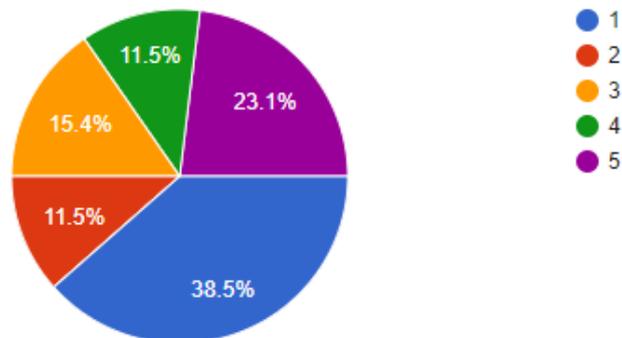
How often would you find yourself on public transport that is over-crowded?

26 responses



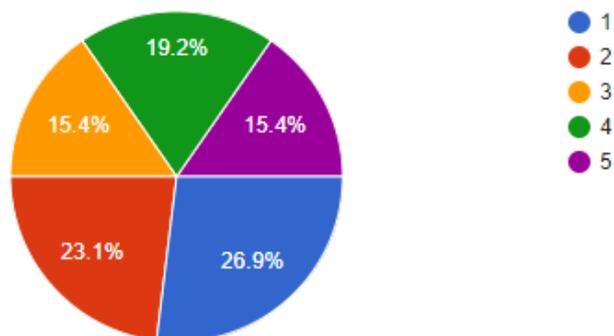
Before using public transport how likely would you be to want to know how busy a particular bus/luas/train is) 1 being most likely, 5 being least.

26 responses



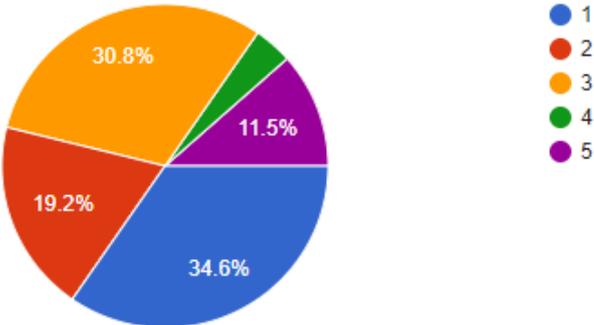
How likely would you be to update info to the app yourself, regarding how busy a place is, to provide more accurate real-time information? 1 being most likely, 5 being least.

26 responses



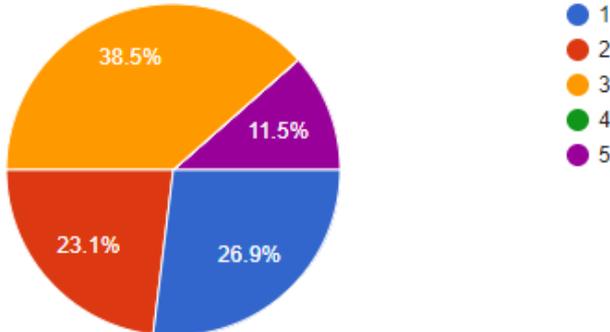
How comfortable would you be with the application using your location to provide better real-time information? 1 being most likely, 5 being least.

26 responses



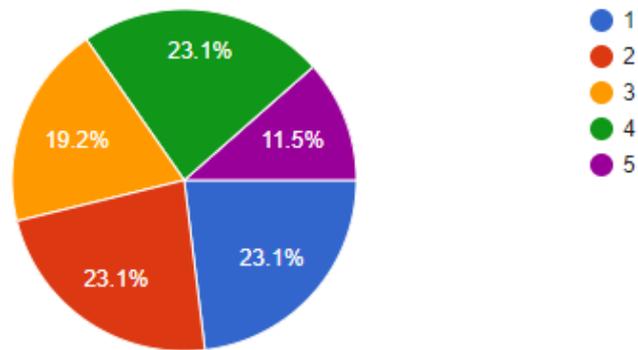
If the answer to the previous question was higher than 3 (least comfortable), would it make a difference if you could choose when the app uses your location?

26 responses



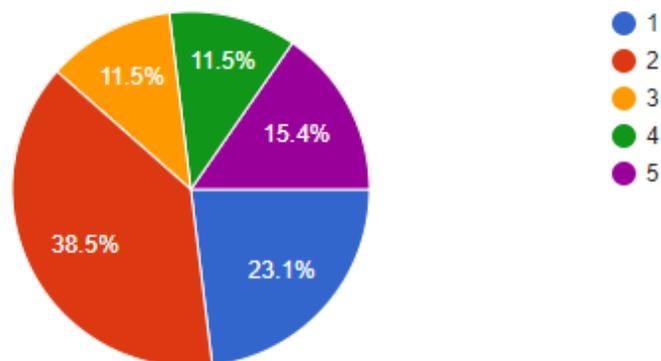
Would you be more likely to use this application if there was a social media factor, eg a live comment section or forum where discussions could take place about the various participating establishments? 1 being most likely, 5 being least.

26 responses



Would you like to be able to book/reserve a table or place in a given establishment via this app?

26 responses



From the data gathered through the survey it was possible to identify the following requirements:

- App should be available for Android and iOS
- Should be free to download
- Notifications on establishments
- Notifications on cancellations
- Notifications through sms or whatsapp
- Be able to sign in with Facebook and Google
- Make a profile/sign in with this also
- Database for user information
- Information on public transport – if busy or not
- Users able to update info on how busy places are

- User location
- Be able to turn on/off location
- Comment section/forum
- Be able to make reservations via app

2.3 Interviews

2.3.1 Interview 1 results and conclusion

An interview was held with Sonia, who runs the gym at NCI. The interview was a great way to gain some perspective and better understanding into how QueLess could be better tuned to fit businesses of this type. Below is a transcript of the interview:

1) Do you find that your establishment becomes overcrowded? If so how often?

- We are open six days a week, so Monday to Friday with the clientele we have being business people as well as students, lunch time between 12 and 2 is packed. What we find now is that the business clientele and students are aware of that, so where someone is due into work at 9 they generally get in at 8, and they will come in here at 11.
- So what is happening and has generally been happening the last while is that people are changing their lunch times, instead of coming in between 12 and 2 they might come in at 11, or even at 4 or half 4.
- The footfall is constant throughout the day, but between 12 and 2 is lunchtime in the ISFC so it is packed, as well between half 5 and 7 it is packed as people will get off work and come straight here.
- Over the past few years because of the huge increase in membership, a lot of people who live in the area might come in at the morning, or who would normally come around the half 5 or 6 mark would now leave it till 7. So between half 9 and half 5 would be a busy time.

2) If the answer to the previous question was “Daily”, can you elaborate on this, for example if it occurs more than once daily?

- *Answered above*

3) Does this cause unnecessary pressure on staffing requirements and or budget, such as needing more trainers?

- No we have that covered anyway whether its busy, with every business you would have peak times of the year and off peak times, so for example January to March is peak time so we would have a full amount of staff in at these times.
- At off peak times which are generally between 2 and half 5, now because the gym is a lot busier, its constant flow so what would happen is people, especially students would know lunchtime is jammed and they will leave it until 2 or 3 to come in.
- So it will still be busy but we wouldn't need to have 2 or 3 trainers on the floor at a time.

4) If there was an app that could provide real time information to customers on how busy your establishment is, do you think this could benefit your business and how?

- It would be definitely, we have a lot of people that within the IFSC are our prime market, but because of the Samuel B. bridge there are a lot of people who work in companies across the water that are coming, so it would be idea for them to be able to see on an app and know when its busy.
- When a new member joins they generally pick up on a time that suits them best, but it could be very useful as well to see on an app because every day is different.
- So the business people for instance might have particular meetings on a Monday, so a Monday at 4 o'clock could be completely different than a Tuesday at 4 o'clock, so it could be useful in that way.

5) Would you like to be able to upload your own content to the app regarding your busy periods? For example if there are delays or classes cancelled due to a staff member out sick etc

- It would be handy, generally what would happen if someone called in sick is that another trainer would take the class.
- So what we try to do is avoid cancelling any classes or any gym assessments, generally everything will go ahead but it will be another trainer that would take over.
- We definitely try never to cancel any thing, so we could maybe have an update on the app just to say the trainer has switched.

6) If there was a comment section, forum or private messaging for customers to get in contact you would you be willing to comply (if so in which manner) or stick to traditional methods?

- What we generally do is deal with anything through direct message, if for example our class timetable is emailed out to everyone on our class database which you can opt in for.
- Again for emailing out renewals, everything is done individually. It is important that things are done individually, and to be careful who you are emailing and for what reason.
- So if someone were to email me I would email them back, you can't sort of bombard members with emails, which we wouldn't do here anyway.
- Sv Fitness is different to a lot of clubs, it's very personal, out of nearly 4000 members we could nearly know the name of everyone as they come in.
- So for instance if you sent an email about a query, it would stay between us and would be replied to individually rather than a generic email.
- So we do everything really through email, even the SV Fitness Facebook page people can individually and privately message us and we can message back.
- Even signing up we do here we don't do it online as to keep things very personal which is very important to us, to be able to say hello to someone and have a chat as they come in so get really know people.

7) Would you like for customers to be able to upload information on your business? For example if there were particularly short or long queues

- Because of where we are and that we are a private club, anyone who joins quickly understands that there will be peak times such as lunch time as people generally work 9-5 and lunch will be between 12-2.
- So a lot of members would have the same routine and come at the same time, people themselves know when it is busy, and if they want to come at a quieter time they will come between 2 and 5.
- People work out themselves when it is busiest and most quiet and can change their routine to this.

8) Would you like to see users log in through a specific account for the app, Facebook, or Google and why?

- We have WIFI in the club for members, and they all log in through Facebook, and Google through SV Fitness.
- So they would go into their internet and hit "SV Member" and they will be asked to log in.

- So if you were to set up an app we would want SV Fitness to appear somewhere so members know it's safe.

9) Would you be willing to offer users of this app special discounts or offers? Eg loyalty points, give an example if possible

- We wouldn't have loyalty points but there is something we could work on, for example we have a lot of people referring others to SV Fitness, so we could with something like that.
- So if a user of your app was to refer someone we could give them a free guest pass.

10) Do you think you could avail of advertising within the app?

- In what way?
- *To have an advert for SV Fitness in the app to promote it*
- Yes that would be a good idea we could put an ad in

11) Do you think any of the following options would be of use to your establishment, please specify:

- Providing data on how long each person stays in your establishment.
- Knowing where in the establishment they went to.
- The amount of time they spent in each section of the establishment.

- At the moment we can kind of do that anyway, everyone who comes in we can see an we would have a general idea of how long people stay.
- The majority of people on average would stay for an hour, this would be made up of a 45 min class or a workout and then 15 mins to shower and change etc.
- People would also come in with only a short time period, maybe just a half an hour or 40 mins, hence why we have classes that are 25, 35, and 45 mins long we try to cater to everybody.
- How long they spend isn't vital information to us, we need to know more so how many people have gone through the door in a day, what are the peak times etc.
- This will let us know if we need to change anything, if we need to move people off a certain time. The data we need really we already have on our system.
- I think where your idea might be best suited to is a more commercial gym, the likes of the Carlisle, since we are a small private health club it would narrow the possibilities.
- If there was a bigger gym that would see a more evenly spread flow of people throughout the day, it could be of real benefit there as it would be harder to predict when it will be busy and when it would be quiet.

- Also if they have more facilities such as a swimming pool, if you could check how busy it is or maybe book a lane if you swim competitively.
- It would be great for places that have squash or tennis courts, if you could check through the app if there is a court free and reserve it, or a notification could pop up if there was a cancellation and you could then book it.
- Any gyms that have these sort of facilities, that require a booking, could be an indoor football pitch or astro, or sports hall, being able to book and see cancellations through the app would be a great help.

From this interview I was able to gather the following requirements:

- Update status on classes
- Log in through SV Fitness or check in
- Advertise SV Fitness
- Make bookings
- See availability of areas (Eg tennis court)
- Notifications of cancellations
- Redeem guest pass

2.3.2 Interview 2 results and conclusion

Doing an interview with Jamie, a manager in the Dundrum branch of Milano restaurants allowed for a detailed insight into another sector into which QueLess can operate, tailoring to restaurants and eating establishments. The interview went as follows:

1) Do you find that your establishment becomes overcrowded? If so how often?

- Yes it does, on a daily basis

2) If the answer to the previous question was "Daily", can you elaborate on this, for example if it occurs more than once daily?

- Yes so there would be peak times, generally sort of 1 till 3 which are for peoples lunch breaks, and then from half 6 in the evening through to half 8 would be the dinner rush.
- That would be Monday to Friday, Saturday you would overcrowd constantly and Sunday because it's the weekend,

3) Does this cause unnecessary pressure on staffing requirements and or budget, please elaborate?

- Yes it can do, because obviously as a business we have a labour budget, and therefore we have to manage that.

- So it can mean that we don't have sufficient people to deal with demand, or sometimes we have too many people when we don't need them.
- 4) In your opinion does the establishment being very busy reduce customer satisfaction, and for what reasons?
- Yes it does, because if it is too busy it means delays on food, it may be a standard wait time for us at peak, but if people want their food in ten minutes, they aren't going to get it.
 - So it can affect speed of service which then affects how people feel about the business, it has a knock on effect.
- 5) If there was an app that could provide real time information to customers on how busy your establishment is, do you think this could benefit your business and how?
- No, because it would probably stop them coming, because they would see there is a wait and they would go somewhere else.
 - If it was an app that they could book tables through, and it told them they couldn't book for 45 minutes that would be beneficial as they would know they have their place waiting.
 - I don't think an app that just shows wait time would be good for business.
 - *Ok so if there was a feature in the app that you could book tables you think this would be good?*
 - Yes absolutely
- 6) Would you like to be able to upload your own content to the app regarding your busy periods? For example if there are delays due to a staff member out sick
- No I don't think customers need to know why there is a wait time or delay, they just want to know how long it will take.
- 7) If there was a comment section, forum or private messaging for customers to get in contact you would you be willing to comply (if so in which manner) or stick to traditional methods?
- Yes, absolutely yea

8) Would you like for customers to be able to upload information on your business? For example if there were particularly short or long queues

- I don't know, because they can do that on trip advisor, they can do that on social media.
- We as a business focus on feedback from customer satisfaction scoring system, so we would probably want to drive people to that and not a third party app.

9) Would you be willing to offer users of this app special discounts or offers? Eg loyalty points, give an example if possible

- If it went through directly to the company, branded stuff because we already have our own database for driving discounts, so if the app was able to link or speak to our database then yes.

10) Do you think it would be of use to your establishment, please specify if the app could provide data on how long each person stays in your establishment.

- Yea, if that was provided directly to us and not to customers then yes.
- It would help us understand how quickly we are turning over tables, which in turn would help us with our sales and forecasting, and resources.

From this interview I was able to gather the following requirements:

- Book or reserve tables
- Comment section/forum
- Coordinate with database for discounts
- Time how long people spend in the restaurant

2.3.3 Interview 3 results and conclusion

Doing an interview with Cian, a manager in the Nutgrove branch of Dealz stores, located in the shopping center, allowed for a detailed insight into another sector into which QueLess can operate. Retail and stores such as this will be a big sector that QueLess aims to target. The interview went as follows:

1) Do you find that your establishment becomes overcrowded? If so how often?

- Yes usually we do get quite busy, weekends in particular are usually very busy as people have time to go out and do their shopping.
- We get a lot of people who come into the shopping center to look around, then perhaps they will remember they need milk or something like that and they will come in.
- So there is a mix of people picking up a few things and people doing a big shop, it depends on the time of day as well, the same with most businesses I guess you will have busy parts of the day and quiet parts.

2) If the answer to the previous question was “Daily”, can you elaborate on this, for example if it occurs more than once daily?

- Usually there would be busy periods during the day, for instance the mornings can be particularly busy, you see a lot of mothers coming in early with their kids who come in to pick up what they need for the day or the week and get the shopping out of the way.
- They are probably up early anyway with the kids, so they want to get out of the house, so we would see a lot of mothers and kids coming in in the morning and throughout the day.
- In the evenings is another busy time, even right up till we close it can be very busy, we will often have to stop people coming in because we are about to close and there is already a full shop.
- Sometimes we could be serving customers for up to 20 minutes after we were supposed to close, I think a lot of it is because people will forget they need certain things like bread or milk and then they will rush out to get the few bits before the shop closes.
- Every day is different, you notice that if for example there is a big football match on you would get a lot of men doing their shopping before or after it so it would be busier at those times.
- Different things really can make a difference but yes usually we would be busy every day at different times.

3) Does this cause unnecessary pressure on staffing requirements and or budget, please elaborate?

- Well we can somewhat predict how many people we would need, weekends we have more staff on because it is normally busier than weekdays, of course bank holidays too.
- When we get the deliveries in we would have more people working but they would generally be in the warehouse or on the floor, sometimes on tills if needed.

- There will be peak times in the year when it will always be packed and you will need the most number of staff on, even then it may not be enough and you will have to ask more people to come in.
- This happens a lot around the holidays, like Christmas, Easter, Halloween etc

4) In your opinion does the establishment being very busy reduce customer satisfaction, and for what reasons?

- I think it can yes, you will often see people getting frustrated if it is very busy and they are trying to find something and people are in their way.
- Especially if the queue is really long, you can see people getting impatient while they are standing there, which can put pressure on the till staff as they are trying to go as quick as they can anyway.
- Realistically though they will come back, we have the best prices and deals compared to most shops so even though it is really busy the customers are still saving money.

5) If there was an app that could provide real time information to customers on how busy your establishment is, do you think this could benefit your business and how?

- Definitely yes, I think a lot of people would use it, maybe not if they are in the shopping center already, but for people who are at home and that who will purposefully come in to get their shopping for the week.
- I think if there was a way for customers to check before they came in how busy the store is they would use it, it would help people plan when they want to do the shopping.
- If people were to avoid the busier times it would take some of the pressure off staff, and give them more time to do their other duties, especially in the evening near closing when we need to start getting the store ready for the next day.
- It might even help get new customers in, where someone might of gone to tesco or dunnes they might decide to come here if they see it isn't busy.
- It would probably help to balance out the flow of customers over the course of the day, I think the customers would be happier with that too as there would be less chaos during the busy times.

6) Would you like to be able to upload your own content to the app regarding your busy periods? For example if there are delays due to a staff member out sick

- Yes it would be of benefit to upload content, perhaps not to say if someone is out sick, we would usually get someone in to cover or just make do if needs be.
- But we could definitely use it to let people know of peak times or when it is quite and inform them of special offers or new products we have in.

7) If there was a comment section, forum or private messaging for customers to get in contact you would you be willing to comply (if so in which manner) or stick to traditional methods?

- Yes we could possibly do that, usually we would just have customers ringing up to ask questions, emails too but it is usually phone calls.
- People would usually ring up to ask if we have certain goods in stock or what time we are open until and that kind of thing.
- So if there was some sort of comment section that was open for people to see it could be useful, someone might ask a question that someone else was thinking and the answer would be visible when a staff member replies, so we would get less calls from customers.

8) Would you like for customers to be able to upload information on your business? For example if there were particularly short or long queues

- Well if there is someone are end uploading content then it probably wouldn't be necessary, we could update the status ourselves.
- Maybe if there was a pop-up or something that came up on their phone as they were leaving saying "how busy was the store" and a scale of "vey busy" to "not busy", it could be useful I suppose to get the customers opinion on how they view the store.

9) Would you like to see users log in through a specific account for the app, Facebook, or Google and why?

- Well I suppose which ever is best for the user, I know some people would always sign in to things through Facebook and some people who would never do it, the same would go for Google.
- Some people would be probably be more comfortable signing in with a separate account for that app, others would prefer Facebook or Google.
- It would be good to have all of the options there for people to choose which best suits them.

10) Would you be willing to offer users of this app special discounts or offers? Eg loyalty points, give an example if possible

- Well I don't know if we could do that really, it certainly wouldn't be my call, if it was up to me then yea sure, but we are a chain of stores so it would probably have to be a corporate decision.
- If there were to be some sort of discount it would have to be for all the stores not just one, and since our prices are already quite low I don't know if it is something that corporate would get on board with.
- But you never know, it could help get in more customers and increase sales, it is a good idea but would need to be approved by head office.

11) Do you think any of the following options would be of use to your establishment, please specify:

- Providing data on how long each person stays in your establishment.
 - Knowing where in the establishment they went to.
 - The amount of time they spent in each section of the establishment.
-
- Yea it could be useful, again it would probably be a decision for corporate as they would deal more so with data, we have percentages and sales figures we need to reach.
 - I suppose it could help know which sections have most appeal to customers, but we could sort of gather that from the data we have, sales figures and such.
 - It would perhaps be more beneficial in a larger store as there would be more sections and goods etc.

From this interview I was able to gather the following requirements:

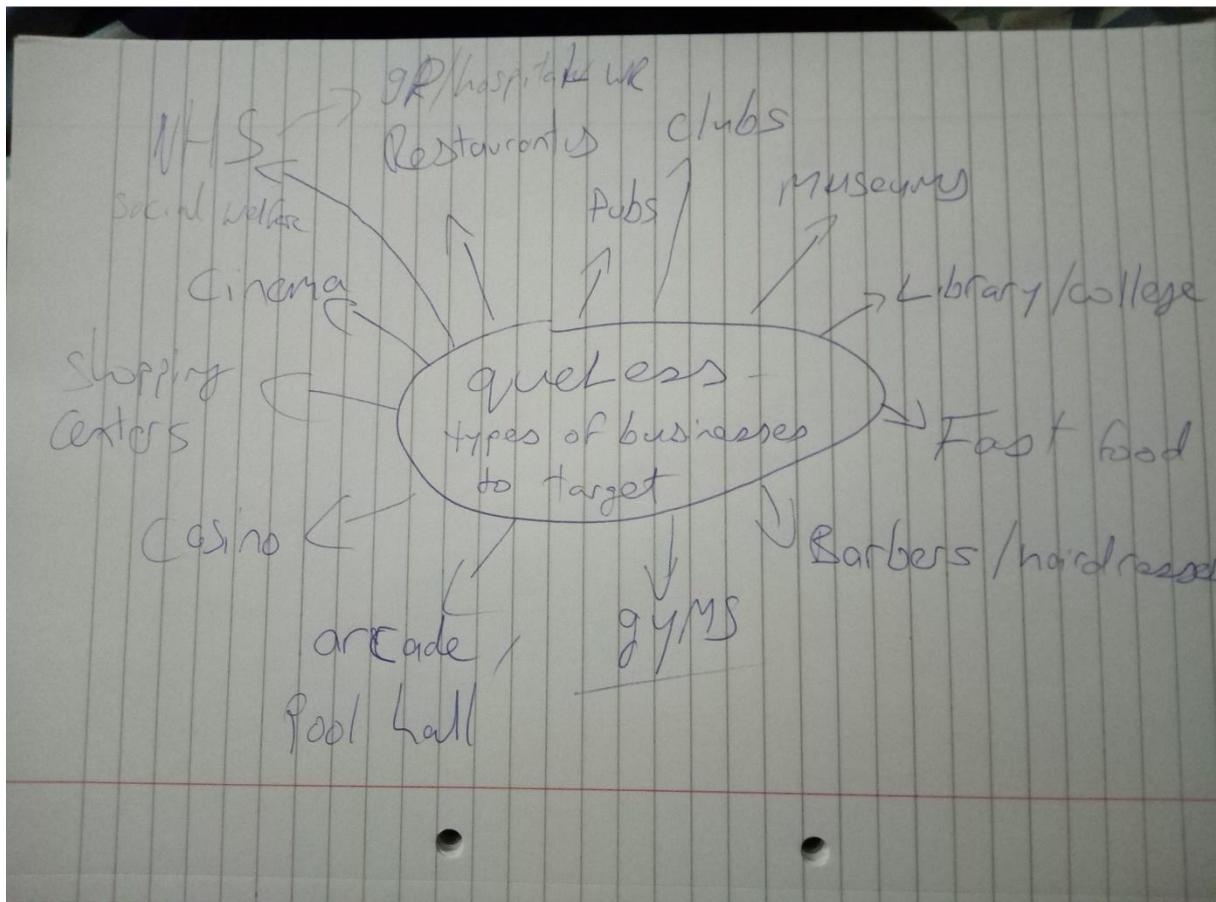
- Upload content on new offers or products, if goods are out of stock
- Forum or comment section where customers can ask questions
- Pop up scale asking customers to rate how busy a store is

2.4 Focus Group

The focus group was a useful tool in narrowing down, or in this case broadening scope. This particular focus group was aimed at identifying potential businesses and industries in which QueLess

can operate. The main three businesses identified previous to this were gyms, shops and bars. It was of great benefit being able to sit down with someone and go over the idea, breaking it down simply into the solution of the problem that it aims to solve, then envisioning where else this problem exists, and where this solution can be implemented. It allowed for a lot more businesses and industries to be potential partners or targets for QuesLess.

The focus group took place in National College of Ireland, with a person of interest, and although for a brief period was very useful in gathering a lot of ideas and a wide range of new ideas. The participants of the focus group were allowed to engage in open conversation and take notes as they please, it was requested that the discussion stay within topic though as to assist in the flow of ideas and to save from getting distracted. If there were any ideas generated that could be of benefit, but were not related to the topic at hand, there was time set aside at the end of the focus group to discuss these, and possibly elaborate on them for future requirements. The suggestions were drawn up on a note pad and are as follows:



The requirements gathered from the Focus Group, in regards to new business prospects are:

- Gyms
- Bars
- Restaurants
- Nightclubs
- Museums
- Library
- College facilities eg canteen
- Barbers

- Hairdressers
- Arcade
- Pool hall
- Swimming pool
- Casino
- Cinema
- Shopping centers
- Hospital waiting room
- GP waiting room
- HSE offices
- Social welfare offices

2.5 Prototyping

The creation of low fidelity prototypes assisted in helping to create a real image as to what the finished application could look like. The first versions were sketches on paper in order to get an initial idea of what it may look like. The final versions were created using the web tool Balsamiq, which is specifically for creating wireframes and mock ups of web pages, software, and applications. Adobe Fireworks was also used to edit the wireframes and insert the logo, which helps to give it a more realistic and appealing look. Not only did it help to get an idea of what the final product will look like but it also helped to elicit requirements for the application.

Being that the prototypes are purely cosmetic, the majority of the requirements elicited were non-functional requirements, and revolved around the layout of the application. It is important to have a good user-friendly design for an application, that both has an appealing interface and is easy to use. If there is some confusion when trying to navigate through the application this could reduce customer satisfaction and essentially reduce how useful the application is.

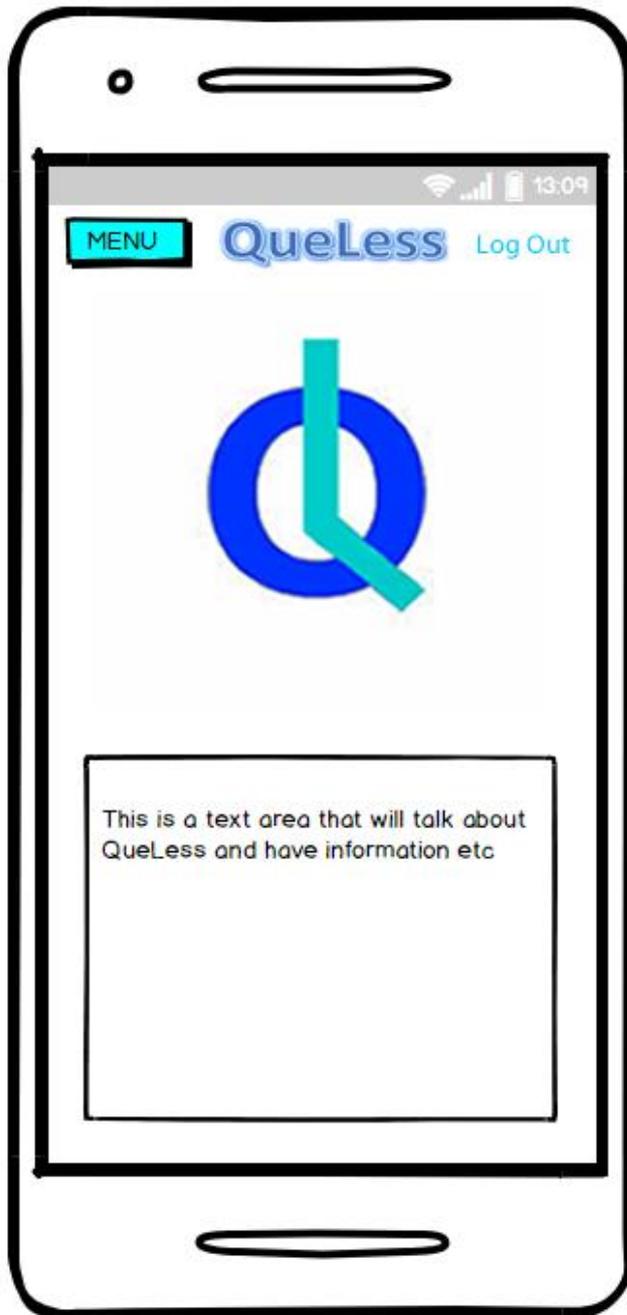
This was something that was kept in mind when creating these mock ups, to have a simple and appealing design that would allow people to use the app for its intended purposes efficiently. Certain effects were added into the design to help make it look realistic and give it an appealing look to further help stakeholders see what the finished product would be like and get a glimpse of the application from a user's perspective.

The prototypes focus on the core pages that would be features in the application, such as the home page, search page, a page with an interactive API map, and a page that features a list of businesses that can be searched. Having these pages clearly and their functions separate allows for the user to quickly go into whichever page they wish with ease, instead of having to go through various pages to get to the one they want. Below are the low-fidelity prototype mock-ups:



Front Page

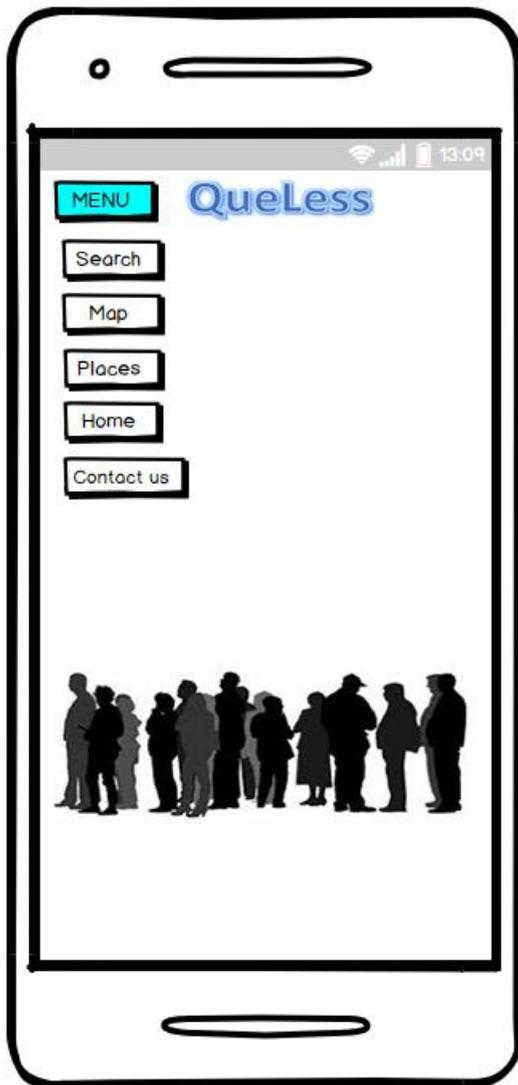
This will be the front page that a user sees when they open up the application, they will be asked to sign in, or if they do not have an account they will be asked to sign up. When they choose to sign in they will be asked to input their log in details, there can also be an option for them to log in via Facebook or Google.



Home page

The home page will be kept fairly simple, the logo in the middle with a text box underneath that talks about the application and the business. This will allow the user to get a better understanding of the company and its goals. Within the text box and company description, a vision and mission statement or charter could possibly be included. This would seek to give a definitive purpose to the business, and provide a sort of guarantee to the customer of the standard of the company.

As in all the pages the name QueLess will be featured at the top in centre position. This should always be visible, and if clicked on should direct the user to the home page. Beside this, in the top left corner of the page is a button which activates the dropdown menu, which shows the main pages of the application. User will be able to log out of the application on this page via a button in the top right corner.

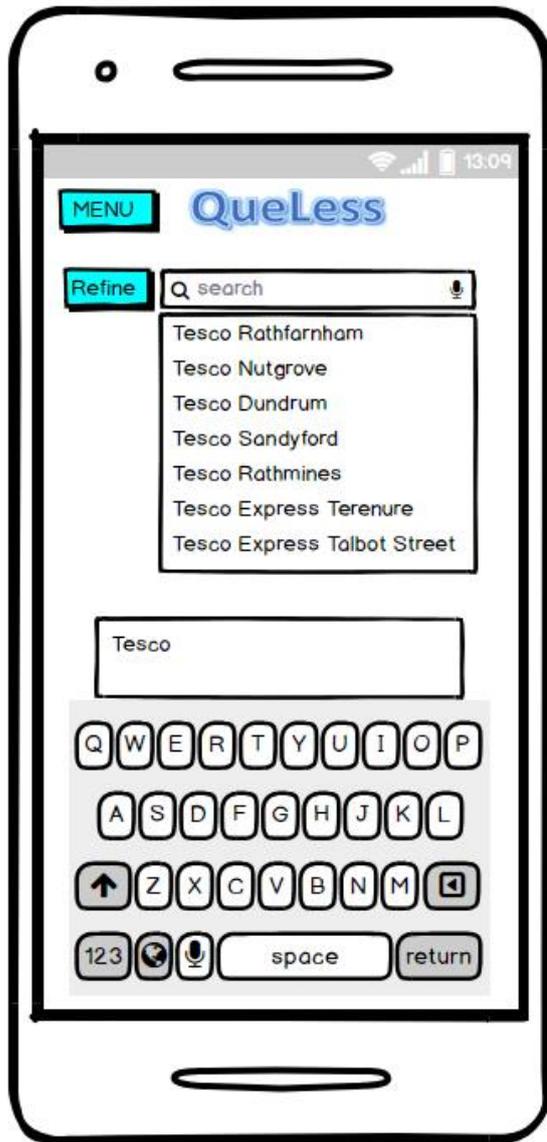


Menu page

When the “MENU” button in the top left corner is tapped, it will activate a dropdown menu which will have several pages, these will be the main pages of the application and will allow the user to access them easily. The primary function of the pages listed will be to allow the customer to search for places in several ways.

Being able to search via different methods will be useful, as users will be able to choose the way which suits them best. Having these clearly distinguished on the dropdown menu will save the user having to sift through several pages before being able to search in the manner they wish. The different search methods can be more useful in different ways, depending on when or where they are used which seeks to promote a more user friendly design and create higher customer satisfaction.

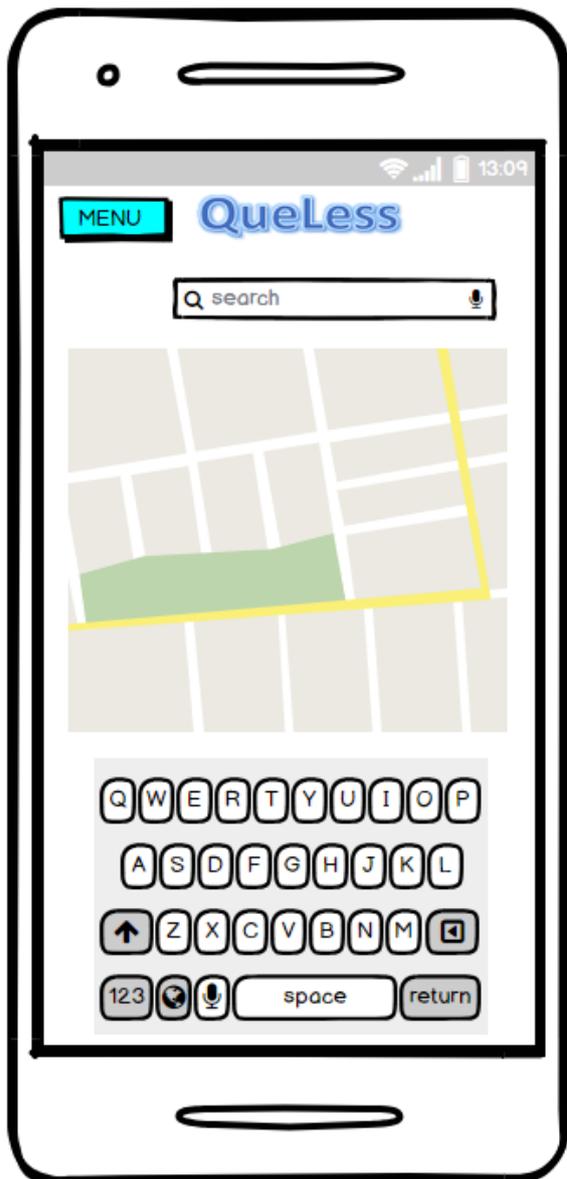
Being that there is not much else on this page, the image of people queueing help to make the page more visually appealing for the user, while also subtly outlining the problem which QueLess aims to solve. It will help for the user to be reminded of the usefulness of the application and promote longer use.



Search page

From the dropdown menu, the first button that can be selected says "Search", which will of course redirect you to a search page. This is probably the easiest and most efficient way to search, simply type into the search bar the name of the place you want to go and it will display the available options. In the example above the user has input "Tesco", which as returned a list of options, the user can now scroll through the options to find the one(s) they want and tap on them to display the relevant information.

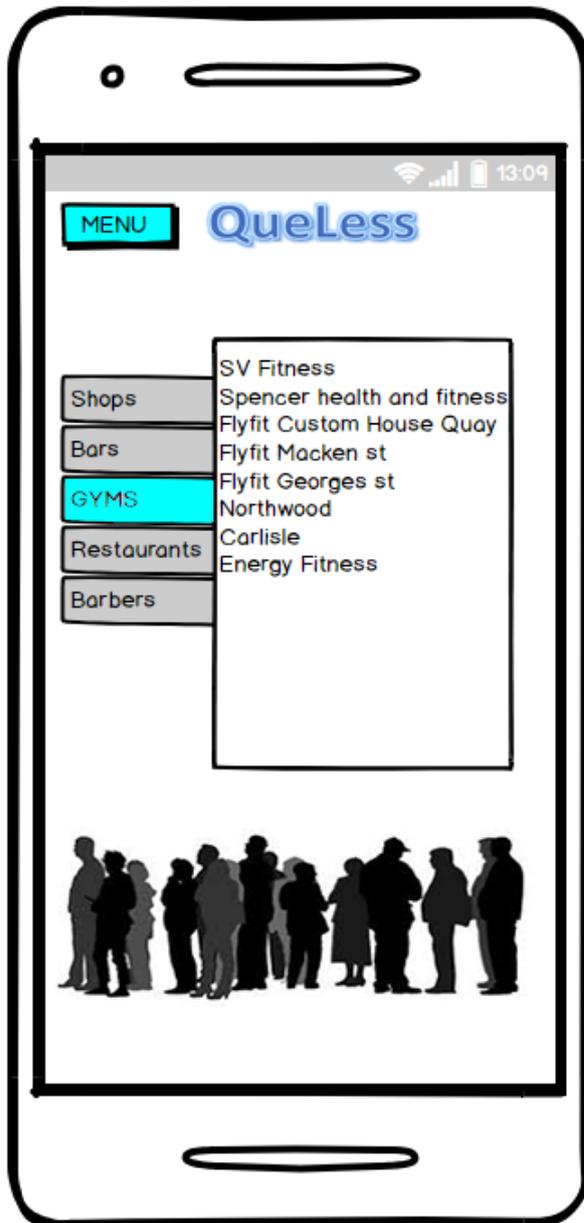
If the user wishes they can also add or search a location, for example "Spar IFSC", which would then return the related search options. There is also a button beside the search bar that says "Refine", this will allow the user to add filters to their search criteria such as location, type of business (shop, pub etc). It will allow the user to narrow down their search, and easily find an option that suits them.



Map Page

The map page allows a user to easily see what businesses around them can be searched, the map will use the location of the device that the user is searching with, and display it as a dot on the map. There will be icons that show the location, and nature of businesses around, as is standard with google maps. The user will be able to tap on the place they want to see information on and it will display information on how busy that place currently is.

There will be a search bar at the top, so the user can input a location or name of a place and the results will show on the map, allowing for the user to see the places in relation to their own location and help them to better make a decision on where to go.



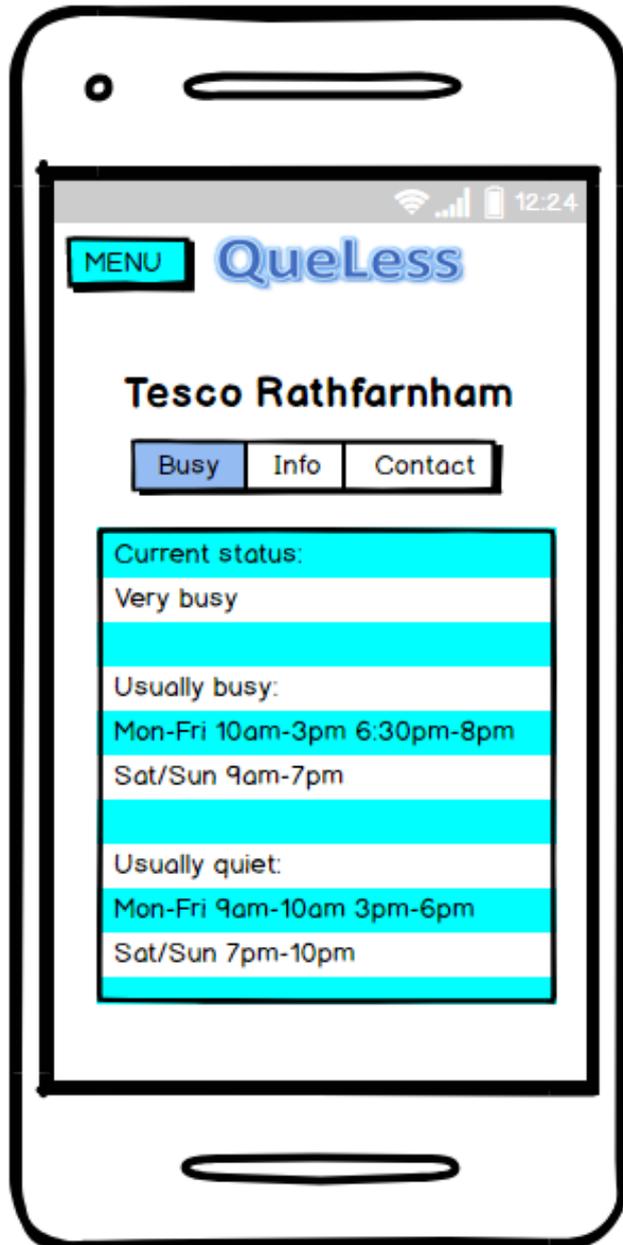
Places page

The places page will be another quick way for users to search a place, this will conveniently have tabs that represent various types of businesses. When one of the tabs is selected the box to the right will return a list of results. In the above example the tab “Gyms” has been tapped, which prompts the results shown to be of various gyms that QueLess can display information on. When an option from the list is selected the app will then display the information available on it. Again there will be the image of people queueing near the bottom of the page, as otherwise the page will be quite blank when none of the tabs will be selected, and will help to provide a more visually appealing look for the user of the app.



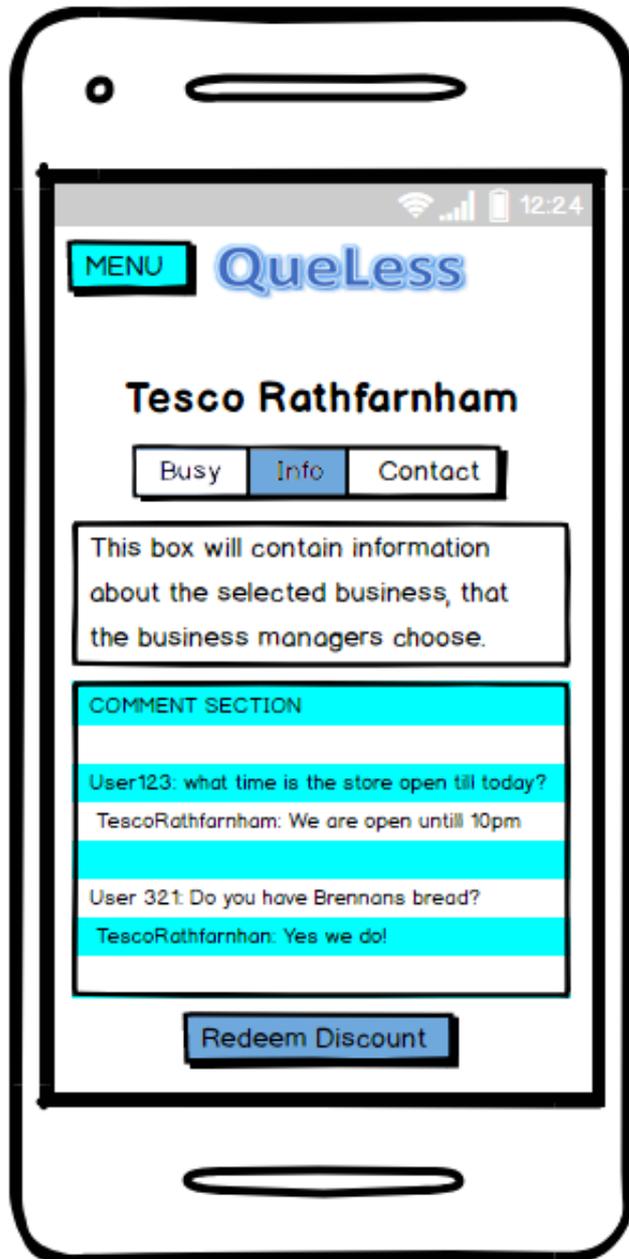
Contact us

When the user taps “Contact us” it doesn’t redirect to another page like the rest of the buttons in the drop down menu, it simply shows a pop up of text of the relevant information. The reasoning behind this is that there is very little information to display, so a full page dedicated to this would be unnecessary and hinder the user.



Business Page

When a business is selected it will bring you to the page of that business, as can be seen in the above mock up the user has selected Tesco Rathfarnham. There will be three tabs within this that the user can tap to display different information. The first, titled "Busy", will display information on how busy the establishment currently is. It will also inform the user of when the business is usually busy and usually quiet. Please see below for the next tab.



Business 2

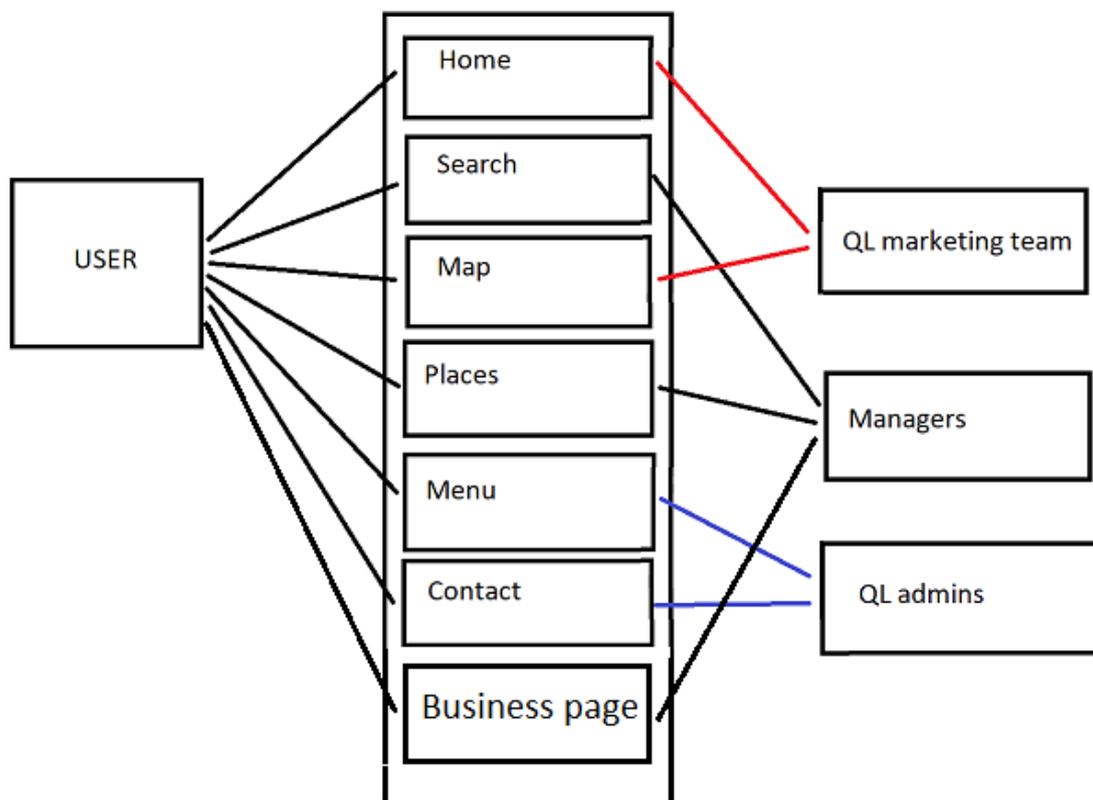
The next tab, titled "Info", will have a box containing generic information about the establishment. The information displayed will come from the managers of the business themselves. Underneath will be a comment section where users can ask questions such as the opening and closing times, what products are in stock etc. Managers have control over their input to this section and will be able to reply to comments as the wish. There will also be a button for users to redeem discounts, if there are any available.

There will be a third tab that will display to the user contact information on the business, such as address of the business, phone number, and email address.

The requirements gathered from the prototyping process are:

- QueLess name at the top of every page
- Dropdown menu (button in top left corner)
- Blues and white colour scheme
- Logo on home screen with info underneath
- Search page with refine option
- Interactive map (separate page)
- Places page
- Images in pages
- Display QueLess contact info
- Pages with info on businesses
- 3 tabs with info in each
- First tab returns info on busy periods
- Second tab shows info on business/comments/discounts
- Third tab shows contact details for business

2.5 Use Case Diagram



The purpose of the use case diagram is to show the relationship and interaction between the various stakeholders and the QueLess application. The stakeholders are shown outside of the boundaries of the app, with the various pages of the app on the inside of the system boundary. The lines show which parts of the app the stakeholders have access to, the user will be able to access all of the pages. The marketing team of QueLess will be able to access the home page and map, they will be able to post adds and change the content. The managers of the businesses will be able to edit the information displayed on their respective businesses in the business info page, and how the business appears in the search and places pages. The QueLess admins will have access the menu and contact pages and be able to make changes therein.

2.7 MoSCoW Analysis

In order to prioritise the requirements a MoSCoW analysis is needed, this shows the requirements that **MUST** be included, **SHOULD** be included, **COULD** be included, and **WOULD** be included. Each of the groups listed represent the importance in that descending order, so the requirements that “would” be included are of the lowest priority. From the requirements that were elicited through the various techniques and from the prototypes, these were analysed closely and narrowed down into the ones in the tables below. A lot of the requirements, upon analysis were not of real use, and many were reoccurring in the various techniques and only need to be listed once. From the 76 requirements that were collected, only 27 functional requirements and 15 non-functional requirements are being included.

Once the requirements that are to be included were identified, it was a case of assessing how critical they were to the project and how useful they are. From this it was a simple process to assign the individual requirements into one of the groups (must, should, could, would) based on the usefulness of the requirement in question. As can be seen in the tables below, are the results of this critical analysis.

Must
FR1: A search bar
FR2:A Refine search option
FR3: Information on premises should be displayed in real-time
FR4: An information page for each business
FR5: Receive data from users
FR6: Receive data from business owners
FR7: Make a profile
FR8: Sign in with profile
FR9: Forgot password
FR10: Set password (caps,numbers,min characters) etc
FR11: Comment section/forum on businesses pages
FR12: Redeem guest pass / discounts / vouchers etc
FR13: Pop up scale asking customers to rate how busy a store is
NF1: Easy to navigate
NF2: QueLess name at the top of every page

FR14: Dropdown menu (button in top left corner)
NF3: Blues and white colour scheme
FR15: Responsive map with locations of businesses (API)
NF4: List of businesses

Should

NF5: A contact page for each business
NF6: A contact page for QueLess
FR16: Notifications on establishments
FR17: Notifications through app
FR18: Be able to sign in with Facebook and Google
FR19: Be able to make reservations / bookings via app
FR20: Synchronize with existing systems
FR21: Time how long people spend in the establishment
NF8: Logo on home screen
NF9: Information on QueLess homepage
NF10: Images in pages
NF11: Display QueLess contact info

Could

NF12: Upload information page for app users
NF13: Upload information page for business owners
FR22: A link between the vouchers/discounts page and the notification system.
FR23: Receive data from in-store hardware
FR24: Notifications through sms and whatsapp
NF14: Advertise featured businesses in app
FR25: See availability areas in business (Eg function room/tennis court)

Would

FR26: Notifications on cancelations
NF15: Advertise featured businesses in app
FR27: Information on public transport – if busy or not

3.0 IEEE Requirement Specification

3.1 Introduction

Purpose:

The IEEE requirement specification document serves the purpose of clearly identifying and documenting the functional and non-functional requirements. It aims to ensure that the correct development steps are taken, and that the end product will be of the best possible spec and will meet all the stakeholders needs. Stakeholders will inspect and analyse the completed IEEE document to make sure that any necessary changes have been met and that the expectations made at the beginning of the project have also been met.

Scope:

The development of this application is to serve a variety of purposes and stakeholders. At present there is no application available that is used to search premises and inform the user how busy they are, and one that could potentially be used worldwide. The demand for this application has been generated by the fact that the population of major cities is growing rapidly, and so too is the amount of things that people need to do daily. People are becoming increasingly busier, and with the population of cities growing it can mean that things aren't always being done as efficiently as they could be, and that an application that would allow users to go places and do things without having to waiting in line would be of huge benefit.

The application will allow users to search an establishment in several ways, by typing in the name and/or location of the place, searching via an interactive API map, or by searching via the category that the establishment is eg restaurant. When the search results are returned the user will be able to tap on the one they wish, which will then bring them to the page of that individual business. The page will show the user how busy the place currently is, and when the usual busy periods and quiet periods are. The page will display general information on the business, a comment section where a manager can answer customer's queries, and a button where the customer can redeem discounts, if applicable. Depending on the type of business and the facilities they have, there may be a function whereby a user can make a reservation at the click of a button, for example to reserve a table in a restaurant. There will also be a tab which will display the contact information for that business, such as email address, phone number, and location.

3.2 Functional Requirements

3.2.1 Class one: User

Functional requirement 1	
Identification Code:	FR1
Title:	Search Bar
Description:	The user will be able to input the name of a business or location in order to return search results
Location:	This is located on the "Search" page
Priority:	Must have.

Functional requirement 2	
Identification Code:	FR2
Title:	Refine Search
Description:	The user will be able to tap a button beside the search bar and add filters to their search to help them return accurate results. Some of the criteria are location, type of business etc.
Location:	This is located on the “Search” page
Priority:	Must Have

Functional requirement 3	
Identification Code:	FR3
Title:	Real-time Information
Description:	When the user searches for a business and selects an option it will redirect them to the information page of that business. On this page there will be real-time information informing the user on how busy the premises currently is.
Location:	On the information page of the individual businesses
Priority:	Must have.

Functional requirement 4	
Identification Code:	FR4
Title:	Business information page
Description:	This page will serve the purpose of informing the user on how busy the premises is, its usual busy and quiet periods, general information, contact info, and depending on the business the ability to redeem discounts or make bookings.
Location:	This will appear when a user selects a search result
Priority:	Must have

Functional requirement 7	
Identification Code:	FR7
Title:	Make a profile
Description:	The user will have the option to create an account in order to use the application, they will be prompted to enter an email address and password to have a secure login process.
Location:	Front
Priority:	Must have

Functional requirement 8	
Identification Code:	FR8
Title:	Sign in with profile

Description:	The user will be able to sign into their account on the application by inputting the username or email, and password they used to create the account, into the relative boxes in the “sign in” section.
Location:	Front page
Priority:	Must Have

Functional requirement 9	
Identification Code:	FR9
Title:	Forgot password
Description:	The user will be able to tap on the “forgot password” link when signing in. this will redirect them to a page where they can reset their password via their email address, in the case that they forget their password and can not sign in.
Location:	Sign in page
Priority:	Must have

Functional requirement 10	
Identification Code:	FR10
Title:	Set password
Description:	This will be present when a user is creating their account initially, or when they are resetting their password. They will be asked to input a password, containing a set number of characters that must contain at least one upper case letter and one number.
Location:	Sign in page
Priority:	Must have

Functional requirement 11	
Identification Code:	FR11
Title:	Comment section
Description:	There will be a comment section on the information page of the individual businesses whereby users can ask comments/leave feedback etc. Managers of the businesses will be able to respond to these.
Location:	Business information page
Priority:	Must have

Functional requirement 12	
Identification Code:	FR12
Title:	Redeem discounts

Description:	On the information page for the businesses, there will be a button that will direct users to redeem vouchers, discounts, guest passes etc. Note that not all businesses will offer these.
Location:	Business information page
Priority:	Must have

Functional requirement 13	
Identification Code:	FR13
Title:	Pop up scale
Description:	When a user is in an establishment that is featured on the app a pop up scale will appear asking the user to rate how busy the place is, this will appear as a notification on their phone.
Location:	App notifications
Priority:	Must have

Functional requirement 14	
Identification Code:	FR14
Title:	Dropdown menu
Description:	There will be a button in the top left of the screen at all times, this button will be titled "MENU", when it is tapped there will be a dropdown menu along the left hand side of the screen listing the main pages that the user can go into.
Location:	Every page
Priority:	Must have.

Functional requirement 15	
Identification Code:	FR15
Title:	Responsive Map
Description:	There will be a page containing a responsive API map which the user can search for featured businesses and see their location as a pop up pin on the map.
Location:	Map page
Priority:	Must have.

Functional requirement 16	
Identification Code:	FR16
Title:	Notifications on establishments
Description:	The user will get notifications if their local establishments are particularly busy or particularly quiet.
Location:	App notifications
Priority:	Should have.

Functional requirement 17	
Identification Code:	FR17
Title:	Notifications through app
Description:	The user should receive notifications through the application, regarding information about featured businesses etc.
Location:	App notifications
Priority:	Should have.

Functional requirement 18	
Identification Code:	FR18
Title:	Be able to sign in with Facebook or Google
Description:	When signing in or signing up to the application there should be an option that allows users to do this through either Facebook or Google.
Location:	Home page
Priority:	Should have

Functional requirement 19	
Identification Code:	FR19
Title:	Make bookings/reservations
Description:	There should be a link on the business information page that will direct a user to be able to make a booking or reservation within the establishment. Note not all businesses will have this feature.
Location:	Business information page
Priority:	Should have

Functional requirement 22	
Identification Code:	FR22
Title:	A link between the discount page and notifications
Description:	There could possibly be a feature whereby a user will get a notification if they are able to avail of a discount.
Location:	App notifications
Priority:	Could have.

Functional requirement 24	
Identification Code:	FR24
Title:	Notifications through sms/whatsapp

Description:	The user may prefer to receive notifications via text message or whatsapp message rather than a notification alert on the application.
Location:	App notifications
Priority:	Could have

Functional requirement 25	
Identification Code:	FR25
Title:	See availability
Description:	Users could be able to view the availability of facilities that are able to be booked, prior to the booking process
Location:	Business information page
Priority:	Could have

Functional requirement 26	
Identification Code:	FR26
Title:	Notifications on cancellations
Description:	Users receive notifications if there was a cancellation on a facility in a premises that the previously wished to book
Location:	App notifications
Priority:	Would have

Functional requirement 27	
Identification Code:	FR27
Title:	Information on public transport
Description:	Users could search how busy the next available bus/train/luas is prior to its arrival.
Location:	Menu
Priority:	Would have

3.2.2 Class Two: Admin

Functional requirement 5	
Identification Code:	FR5
Title:	Receive data from user
Description:	The system will receive information from the users of the application regarding how busy the premises they are in is. This will be analysed and included in the information that will be available to users on how busy the premises is.
Location:	????
Priority:	Must have

Functional requirement 6	
Identification Code:	FR6
Title:	Receive data from business
Description:	The system will receive information from the managers of the participating businesses regarding how busy their premises is. This will be analysed and included in the information that will be available to users on how busy the establishment is.
Location:	?????
Priority:	Must have

Functional requirement 20	
Identification Code:	FR20
Title:	Synchronise with existing systems
Description:	It may occur that QueLess will need to link with the systems that are in place within the individual organisations. This may be necessary for making bookings, redeeming discounts etc.
Location:	???
Priority:	Should have.

Functional requirement 21	
Identification Code:	FR21
Title:	Time patrons
Description:	By using the users location the application should be able to time how long the customer stays in the establishment, this data can be used to provide better customer understanding to clients.
Location:	???
Priority:	Should have

Functional requirement 23	
Identification Code:	FR23
Title:	Receive data from in-store hardware
Description:	If there is hardware within the premises that monitors activity and collects data this will be sent to the QueLess system to be analysed and used to display more accurate information to users, and provide information to business managers.
Location:	???
Priority:	Could have

3.3 Non-functional Requirements

Non-functional requirement 1	
Identification Code:	NF1
Title:	Easy to navigate
Description:	The app must be easy to use, and have an appealing layout.
Location:	All pages
Priority:	Must have

Non-functional requirement 2	
Identification Code:	NF2
Title:	QueLess name
Description:	The name of the application “QueLess”, must be featured at the top and centre of pages at all times.
Location:	All pages
Priority:	Must have

Non-functional requirement 3	
Identification Code:	NF3
Title:	Colour Scheme
Description:	The colour scheme of the application is made up of white and various shades of blue. This must be reflected throughout the application.
Location:	All pages
Priority:	Must have

Non-functional requirement 4	
Identification Code:	NF4
Title:	List of businesses
Description:	In the places page there will be categories of businesses such as shops, gyms, pubs etc. Within these categories there will be a list of the businesses of that type that are featured in the application which the user can search.
Location:	Places page
Priority:	Must have

Non-functional requirement 5	
Identification Code:	NF5
Title:	Contact page for businesses

Description:	When a user searches for a particular business and goes into the information page for it there should be a section which displays to the user the contact details for that business.
Location:	Business information page
Priority:	Should have

Non-functional requirement 6

Identification Code:	NF6
Title:	Contact page for QueLess
Description:	In the dropdown menu there should be a tab that when tapped will display to the user the contact details for QueLess
Location:	Dropdown menu
Priority:	Should have

Non-functional requirement 8

Identification Code:	NF8
Title:	Logo on home screen
Description:	The QueLess logo should appear on the home screen before and/or after the user logs in
Location:	Home page
Priority:	Should have

Non-functional requirement 9

Identification Code:	NF9
Title:	Information on home screen
Description:	Information on QueLess should be displayed on the home page underneath the logo.
Location:	Home page
Priority:	Should have

Non-functional requirement 10

Identification Code:	NF10
Title:	Images in pages
Description:	There should be images in some pages, in particular those with little content, in order to be more visually appealing.
Location:	All pages
Priority:	Should have

Non-functional requirement 11

Identification Code:	NF11
Title:	Display QueLess contact info

Description:	There should be a page which displays contact information for QueLess, this will be accessed via the dropdown menu.
Location:	Menu
Priority:	Should have

Non-functional requirement 12	
Identification Code:	NF12
Title:	Information upload page for users
Description:	A page where users can upload information on how busy the establishment is, feedback on other aspects of the business. This will be accessed through the individual information pages for the businesses.
Location:	Business information page
Priority:	Could have

Non-functional requirement 13	
Identification Code:	NF13
Title:	Information upload page for business
Description:	A page where business managers can upload information on how busy the establishment is, and on other aspects of the business. This will be accessed through the individual information pages for the businesses and will only be accessible by the managers.
Location:	Business information page
Priority:	Could have

Non-functional requirement 14	
Identification Code:	NF14
Title:	Advertise featured businesses
Description:	Businesses that are featured in the application can place advertisements within the app.
Location:	All pages
Priority:	Could have

Non-functional requirement 15	
Identification Code:	NF135
Title:	Advertise non-featured businesses
Description:	Businesses that are not featured in the application can place advertisements within the app.
Location:	All pages
Priority:	Would have

3.4 User Stories

3.4.1 Epic 1 - Use search page

As a user:

I want to search for a business and check how busy it is

Acceptance Criteria1:

Given that the user is logged in..

The user opens the dropdown menu and selects "Search".

The user will then type into the search bar at the top of the search page, the name or location of the place they wish to find.

There will then be a list of results displayed, which the user can choose to select.

The user, upon selecting an option, will then be redirected to the information page of that business.

There will be information displayed to the user such as real-time information on how busy the establishment is, and the usual busy and quiet times.

Acceptance Criteria2:

When a user inputs into the search bar..

If the word typed was misspelled or unreadable, there will be a notice displayed stating that there are no search results.

If the name of the business or name of the location typed does not return any search results, a notice will be displayed stating that there are no search results.

Acceptance Criteria3:

When a user is on the search page..

The user will be able to refine their search by tapping the "Refine" button beside the search bar.

They will then be able to add certain filters to their search input.

Filters that the user can apply will narrow down the search results returned.

Filters that can be applied consist of location, distance from users location, business type, opening hours.

3.4.2 Epic 2 – Use comment section

As a user:

I want to leave a comment, asking a question for Super Value Rathgar

Acceptance Criteria1:

Given that the user has logged in, searched and selected a business..

They will be on the first tab of the information page for that business, which displays information on how busy the establishment is.

They user selects the second tab titled "Info", which will change what information is displayed to them.

They will now be able to see general information on the business, scrolling down the page will reveal a comment section.

The user can tap in the text input box to type a comment and hit enter to send it.

Acceptance Criteria2:

When there is a reply to the comment that the user has left, the user will get a notification informing them of this.

When the user taps the notification it will bring them directly to the comment section, and show them their comment thread.

If the comment the user left was in anyway abusive or offensive, then the comment will be removed.

3.4.3 Epic 3 – Create an account

As a user:

I want to create an account that I can use to sign into the application

Acceptance Criteria1:

Given that the user has downloaded the application..

The user opens the application and are brought the front page.

They will have the option to either sign up or sign in.

The user taps sign up.

They will be redirected to a page with text boxes to fill out.

The user must input their email address, username (optional), a password, then re-enter the password.

The user will tap continue, and they will receive an email to the email address they entered for them to finalise the creation of their profile.

Acceptance Criteria2:

If the email address they typed did not have a compatible format (eg does not say @gmail.com) then the box will display a red notification saying "Email address not entered is not correct".

If the username they enter is already taken, the input box will display a red message saying "Username already exists".

If the password entered does not meet the criteria (eg number of characters) then a red message will display to the user saying "Password must be minimum 8 characters, contain at least one upper case letter, and at least one number".

If the password in the first and second password boxes are not the same then a red notification will inform the user that "Passwords do not match".

Acceptance Criteria3:

If the user selects "sign in" rather than "sign up" on the front page, and they input details that they wish to create an account with, then a message will inform the user that the "Account doesn't exist".

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5.0 Appendix

5.1 Project Proposal

5.1.1 Objectives

The idea in question is an app, which has been named QueLess, as the main objective of this will be to help people avoid queues in a variety of places that one will go to on a regular basis. Primarily of these are shops, gyms, bars, restaurants and many other public places. These being places that see a lot of people on a daily basis, and can become quite congested and busy at certain times, which many people would not like.

This being said it is apparent that in modern day life, people seem to be getting busier and busier and always rushing about, making them less inclined to visit a place, or remain there if they think they will have to spend time waiting about in queues and they will most likely go elsewhere.

Also it may be the case that going out for a social occasion would be more enjoyable in a place that is not overcrowded, being able to check beforehand will give people more options and save time having to go to various places.

This app will be able to monitor various participating establishments and assess how busy they are based on a range of factors, one of these being to install hardware that will essentially count how

many people are entering and exiting a building, and comparing this with the max capacity range for the place based on its size. Also information from the user, such as location and businesses themselves, such as sales systems will provide real-time information to the app on how much activity there is in a particular establishment.

As well as this, users of the app will be able to provide information to the app, giving their own feedback on how busy these locations are or how long are their queues. Owners and workers in the participating businesses will be able to add to it also, as unexpected things may happen such as someone not turning up for work or calling in sick, unforeseen events such as this can cause unexpected delays and a build-up of customers.

Via this app, users will be able to see how busy a place is before going there, thus being able to better plan their day and choosing to go at off-peak times or choose an alternative place that is not so busy. Time is precious enough with so much needing to be done in daily life that having to stand waiting in queues shouldn't be one of them.

5.1.2 Background

The idea for this project came to me one day at the start of this semester, a friend and I had left college and gone to the gym around the corner. It was at a time where we expected a few people to be there, but not too many to be an inconvenience. Arriving at the gym, as we usually do we glanced around the corner before going into the changing rooms, seeing that the entire gym was packed, with little or no space vacant we decided to leave. Knowing from previous experience of this happening, it is very frustrating and difficult to actually get anything done in this situation as all the machines and weights being in use, means you will need to stand around waiting until the person is done. Sometimes there are even other people next in line to use the particular thing having called it earlier. What this means is that the majority of the time spent there is very unproductive, and time could be better spent doing other things, or in the case of a chain of gyms you could visit a less busy branch.

After leaving the gym, I had an idea, turning to my friend I said "it would be great if there was an app that could tell you how busy it is before you go in". And thus the idea of QLess was born. From there I was able to broaden my thought and think in what other situations would this come in useful. Thinking of the next most mundane thing my mind turned to standing in line in supermarkets at a time when numerous amount of people are out doing their shopping for the week, regardless if you are one of those people, or if you only have one or two items it still means you could be queueing up for quite a while. Although it may not seem like the worst thing in the world to stand in line, but it would much rather be avoided if you are coming home at the end of a long day, or in a rush to keep an important appointment.

As well as this there are often times when people will be going out socially, to a bar for example. Having agreed with friends to meet at a certain place is not always the best option, as in many cases when you arrive at the establishment it can be very busy, especially in the city centre, or anywhere around Christmas time. Having to move through the heaving crowd to find your friends or family is a pain, trying to find a table, or even trying to get to the bar to order can be very difficult and stressful. This could be easily avoided by using QLess, as you can check before leaving or while on the way to town or wherever you may be going, to see how busy the chosen spot is. If it is overcrowded a more suitable place can be chosen, by searching how busy alternative places are.

This is just the tip of the iceberg in regards to the potential of this app. Another niche that could be tailored to is that of public transport, many a times I have been waiting at a bus stop in the early hours in order to make it into college for a 9am lecture, and many a times the bus has gone straight past without stopping because it has reached its max capacity on the way. Other times I can make it onto the bus but will have to stand for the majority of the journey squashed in with all the others unfortunate enough to get a seat. If however QLess was able to inform you of to how busy your chose bus is, you could always check the next buses due to see if there is a more favourable one that you could still take and avoid the situation of having to stand, or missing it all together.

Potentially it could also be used to monitor traffic conditions throughout the day, being stuck in rush hour traffic is a pain that everyone is familiar with, if you are on a bus there is not much you can do, but if you are fortunate enough to have your own car, then it may be avoidable based on what route you take and at what time. Being able to check on QLess, and receiving updates from it will make that commute a little less painstaking.

5.1.3 Technical Approach

For this project I will be gathering the necessary requirements to outline all relevant aspects of the project before handing it over to a development team, who will then go and create the app using various methods of coding.

I will gather requirements through multiple methods involving all relative stakeholders. I will start off by conducting interviews, creating surveys and questionnaires, and brainstorming with people of influence on what they would like to see included in such an app. From this information I have been given I will then elicit further requirements from these using techniques outlined in Babok.

By using a multitude of the requirements elicitation techniques set out in Babok, I will put together the software requirements specification document that will effectively act as a blueprint for the project in the later stages in the development cycle. I will but to use what I have learned in the requirements management module to help me elicit and compile requirements.

I will conduct research for this project through a number of methods and outlets, primarily of which will be Babok, seeing as it is a very detailed and definitive guideline for business analysis activities and requirements management. I will also look at other textbooks that may be useful, and also online sources of information. I will also use the resources at hand in college to assist with the project and get feedback from peers and mentors.

5.1.4 Special Resources Required

As mentioned above the resources I will be using will be Babok, along with some other relevant textbooks and online sources and the resources available in NCI.

In order to create the wireframes for the prototype Balsamiq will be used to make the mock ups as well as fireworks to create images and provide an appealing design. Fireworks will also be used to create the project poster for the project showcase. Wordpress will also be used, this is for the purpose of creating a website for the project showcase, to compliment and display the project. Microsoft PowerPoint is also used for the purpose of creating a slideshow for the presentations.

There will also be need for an IEEE guide for requirements gathering, as well as an IEEE requirement document template. Onedrive was used to save the work bit by bit, to ensure nothing was lost. BABOK was also consulted as a means to effectively gather and document requirements in a professional manner.

5.1.5 Project Plan

I have set out specific targets for myself for time management of the project. As such I have been working to get deliverables done to certain deadlines. By the 4th of December I aim to have come up with several drafts of interview and survey questions to be distributed to stakeholders in order to elicit requirements. This will take place after exams when I will contact stakeholders and people of influence to organise these interviews and I will distribute surveys, as well as conduct further brainstorming sessions. I will aim to hold focus groups and requirements workshops later on in the new year. I will need to carefully gather and analyse the requirements that I have elicited. There will be more defined deadlines which I will have to meet in the second semester which have not yet been discussed in detail. These will then be met by coming up with a specific timeline plan to more efficiently help me compile all my work together and get everything ready coming up to the end of the semester and for the project showcase. On that note I will also need to create a project website, which will be used to present my project at the project showcase at the end of the semester.

5.1.6 Technical Details

Wordpress will be used for the creation of the website to display the project at the project showcase. Balsamiq will be used to create the wireframes that will make up the low-fidelity prototype.

5.1.7 Evaluation

Being a business analysis project there will be no technical evaluation to the project in terms of testing etc, there will however be evaluation of the requirements, to make sure they are acceptable to stakeholders. All requirements that are gathered will need to be evaluated and justified. An overall evaluation will take place to ensure that nothing has been overlooked in the duration of the project, all the requirements have been gathered and reported correctly.

Project Website

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