



Let's Walk!

*IEEE Website Requirements Specification Document*

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**Course Name:** *BSc (Honours) In Technology  
Management*

**Course Specialisation:** *Business Analysis*

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**Declaration Cover Sheet for BSHTM4 Project Submission**

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## **SECTION 2 Confirmation of Authorship**

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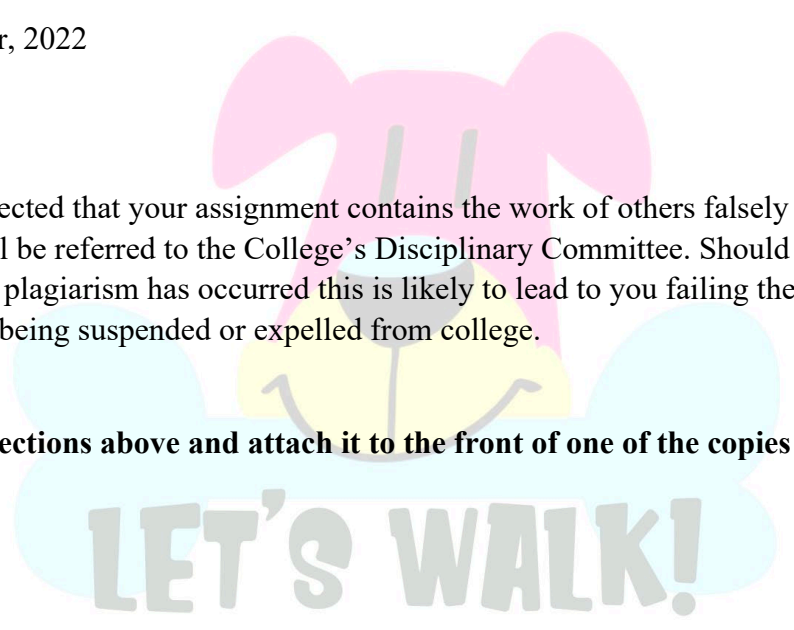
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When referring to the work of another author within the text of your project you must give the author's surname and the date the work was published. Full details for each source must then be given in the bibliography at the end of the project.

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- Suspending a student from college for a specified time.
- Expelling a student from college.
- Prohibiting a student from sitting any examination or assessment.
- The imposition of a fine.
- The requirement that a student to attend additional or other lectures or courses or undertake additional academic work.

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## 1. Requirements Elicitation & Analysis Planning

### 1.1 Introduction

Let's Walk! is a dog walking route generating/tracking app designed to make the activity of walking your dog more rewarding as well as introducing variety and a novelty element. The app is unlike anything currently available on the App store or Google Play Store, there are multiple fitness based apps that offer the ability to track your walk or run with breakdowns like distance covered and time spent, as well as apps related to dog walking but they are, in most cases, a platform that allows the user to create a profile and either offer their services as a dog walker or vice versa – book a walk for their dogs. Let's Walk! will have 2 potential end users, guests and account

holders, the requirements elicitation, gathering and analysing process will be focused on the account holder due to guests only having access to limited features. The demographic/target market for this application is dog owners/dog walkers – the user will have the ability to generate different routes of varying distance starting and ending at their location, they will also have the ability to set challenges for themselves to complete e.g., 10 consecutive walks completed, 20km covered in a week, which will allow them to progress through a ranking system – bronze silver and gold level walker. Further functionality will be added as per the requirements identified by the stakeholders.

The project will involve carrying out large amounts of stakeholder communication to ensure their needs are met and wants, at least considered. Various requirements elicitation techniques will be implemented, firstly a brainstorming session with potential users to identify elements of the app that may not have yet been identified, throughout the brainstorming session all ideas/suggestions/opinions will be documented and later analysed in terms of applicability and feasibility, those that are suitable will be implemented into a survey along with other questions. The survey will give access to more data than the brainstorming session which will have 4-5 participants maximum, the survey however will be accessible to a large group of people on a voluntary basis, the survey will include 5-10 questions and will help to identify non-functional requirements. They will also aid in identifying potential additional features while also allowing me to identify the importance of predetermined features i.e., using a ranking system I will be able to see where each feature ranks in terms of importance to users. Interviews of 3-4 people will also be conducted to their opinion on each element of the application as well as the idea as a whole. While the functional requirements of the app are important it is also vital to find the non-functional requirements which will be mostly done through these techniques. An agile approach will be used during the project and so new requirements may be identified throughout the life cycle as well as other requirements becoming unnecessary and removed from the app/plan.

A MoSCoW analysis will be used to prioritize the gathered requirements and from there wireframes and a prototype of the application will be developed, once again stakeholders will be communicated with and will analyse these wireframes and prototype.

## 1.2 The Business Need:

Currently the app stores for mobile application are flooded with health and fitness apps, people enjoy the dopamine release they receive from completing exercise like a hike or run and posting about it for their family and friends to see. These apps measure the distance covered and break it down into metrics such as time per km/mile, average heart rate and calories burned. These metrics make the task rewarding and are a factor in people wanting to complete their walk or run, there is currently no application with such functionality that is aimed at the target audience of dog walkers both recreational and professional.

In terms of dog walking apps, the only apps available currently offer the customer the ability to book a walk for their dog and vice versa, register as a dog walker and offer their services. WAG is an example of such an app, however it is only available in the US, the Irish counterpart for this app is Pawshake, however the app is limited in functionality and therefore limited in potential users. There is not currently an app that offers a one-stop shop for everything dog related on the one single application and I am to fill that gap with Let's Walk.

Each of the potential competitors for this app are missing something that we would offer.

#### **RouteShuffle:**

- No mobile application
- No daily reminders

#### **PlotARoute**

- Not aimed at dog walkers
- No booking abilities

#### **MapMyRun**

- Maps route as it is completed i.e. doesn't provide a route to walk

#### **Pawshake**

- Doesn't have anything for owners looking to walk their own dog
- Doesn't have any group walking options

#### **Wag**

- Doesn't have anything for owners looking to walk their own dog
- Doesn't have any group walking options

### **1.3 The Business case:**

I have decided this app would be suitable project as it is something I have contemplated developing in my own life, as an dog owner and daily walker one of the biggest pushbacks to bringing my dog on her daily walk is deciding where to go, how long I should long I should go for and how far. I have spoken with friends and family and they agree that this makes it more of a chore than an enjoyable activity, with Let's Walk! users will be provided with new exciting routes starting and ending wherever they desire and will be recommended how long to walk for depending on their dog. The app will be developed to make walking your dog engaging, rewarding and something you look forward to.

The additional feature of a dog walk booking system for those who find themselves too busy on occasion or elderly dog owners unable to walk their dog, this in turn will provide income for those who wish to register themselves as walkers and provide their services to these people.

The user experience will be designed to be as accessible and easy to use as possible for all. The app will be refined to a handful of pages to avoid users getting lost in the app, the user journeys will be well designed and thought out.

I am sure upon speaking with various stakeholders additional features and functionality for the application will be identified and will only improve the app further, but for now I feel we have a great chance of developing an app that people will really enjoy and find useful.

#### 1.4 Stakeholders List & Power/Influence Matrix:

- A. Business Analyst
- B. Project Owner
- C. Developer
- D. Subject Matter Expert (Veterinarian)
- E. UX and UI specialist
- F. End User

#### 1.5 Requirements Elicitation Techniques

##### 1.5.1 Survey

#### **Survey Participants:**

The student body:

- a. General public
- b. NCI alumni

#### **Distribution:**

There were various different methods of distribution used for the survey:

- 1) The survey was shared using a link on various social media platforms such as LinkedIn, Facebook and Instagram.
- 2) The survey link was also distributed amongst class-mates via Microsoft Teams.

#### **Objectives:**

The objective of the survey was to gather whether the app would be used by dog owners and gain an overall opinion on the logic of the app, it also was used to elicit requirements and to help prioritise functional requirements. It was also intended to identify and create a relationship between stakeholders for further communication later in the project.

#### **Questions:**



Q1: Do you or your family have a dog?

- Yes
- No

Q2: How often do you walk your dog?

- Every day
- Every two days
- Once a week
- Less than once a week

Q3: What level dog owner would you consider yourself?

- Beginner
- Intermediate
- Professional

Q3: How long do you spend walking your dog?

- Less than 15 mins
- 15-30 mins
- 30-45 mins
- 45-60 mins
- Over an hour

Q4: What distance do you cover on your walk?

- Less than 2km
- Less than 5km
- Less than 10km

Q5: Do you have a set route for walking your dog?

- Yes
- No

Q6: How often would you change your route?

- Daily
- Weekly
- Monthly

Q7: On a scale of 1-5, 1 being the lowest, how likely would you be to use Let's Walk! ?

- 1
- 2
- 3
- 4
- 5

Q8: Do you purchase pet products online? (Food, accessories etc.)

- Yes

- No

Q9: What additional feature would you find most useful?

- Ability to register as a walker/book a walk for your dog
- Buy dog food, leads, harnesses etc. in the app
- An in-app questions forum for fellow dog owners
- Ability to friend and chat with dog owners in your area

Q10: What feature or functionality would you like Let's Walk to have?

Link to survey: <https://forms.gle/UZ3FLKBmvhjbgrhp9>

### 1.5.2 Interviews:

#### **Interview one: Veterinarian**

##### **Participants:**

Veterinarian (20 years experience)

##### **Interview location:**

The interview took place in the participants practice, which will remain undisclosed due to anonymity

##### **Date of interview:**

The interview took place on Friday the 02/12/2022.

##### **Time of Interview**

The interview was conducted at 12pm and lasted 17 minutes.

##### **Objective of this interview:**

The objective of this interview was to validate the business need and to identify some fundamental features of the app. The interview will also allow for the identification of potential issues or capability gaps that exist with the current plan, from there, solutions to these issues and gaps can be formed. This interview will be of vast importance due to the participant being a subject matter expert, they will have the knowledge and experience to determine things such as – recommended walking distance needed daily for dogs (small, medium or large) to ensure the application is not recommending insufficient distance or too much, either of which could be detrimental to a dogs health and wellbeing. Another objective is to gain the veterinarians opinion on the likelihood of dog owners using the app and if there is any functionality they would suggest that would increase the amount of prospective users.

##### **Interview Questions:**

Q1: How often would you recommend a dog is walked?

Q2: What distance would you recommend they are walked?

Q3: What do you think of the initial idea for the app? Is there anything you would add, change, or get rid of?

Q4: Do you think there is a benefit in changing up the route you walk your dog? Why?

Q5: Do you think in general this app would be used by dog walkers? Why?

## **Interview 2 : Professional Dog Walker**

### **Participants:**

This interview was conducted with a professional dog walker.

### **Interview location:**

This interview took place in Costa coffee shop, Drimnagh Road.

### **Date of interview:**

The interview took place on 7/12/2022

### **Time of Interview:**

The interview took place at 1pm and lasted 25 minutes

### **Objective of this interview:**

The objective of this interview was to elicit requirements from a professional dog walker, to get their opinion on the app and identify any issues or potential additions. Also, to determine whether the app would be useful to professional dog walkers and customers of professional dog walkers.

### **Questions:**

Q1: What is your initial opinion of the app? Is there anything you would add, change, or get rid of?

Q2: Roughly how many customers do you get in a week?

Q3: Are these customers mostly one-off walks or recurring customers?

Q4: How do you advertise your service? How do customers contact you?

Q5: Would you use the app? Why?

### **Interview 3: Software Developer**

**Participants:**

This interview was carried out with a software developer.

**Interview location:**

This interview took place via Microsoft Teams.

**Date of interview:**

The interview took place on 12/12/2022

**Time of Interview:**

The interview took place at

**Objective of this interview:** The objective of this interview is to gain a technical understanding of the feasibility of the proposed features and what ones may cause an issue. Also, to define the scope for the initial release of the application, and overall discuss how the app would be developed. The MoSCoW analysis will be created based on this interview.

**Questions:**

Q1: Can we define what would be feasible to include in the scope for the first iteration of the app due to launch in May 2023 (6 months)?

Q2: Would it be possible to generate a new route and notify the user that it is ready without any input from them?

Q3: Would it be possible to make the app accessible without internet connection?

Q4: What potential issues might we face during the development of the app that we can try to mitigate?

Q5: What level of maintenance will the app require once launched?

### **Interview 4: End User (Customer)**

**Participants:**

This interview was carried out with a potential end user i.e., a dog owner who walks their dog regularly.

**Interview location:**

This interview took place in the interviewee's home.

**Date of interview:**

The interview took place on 20/01/2022

**Time of Interview:**

The interview took place at 13:00

**Objective of this interview:** The objective of this interview is to gain an understanding of the behaviour of a typical dog walker and to highlight the wants and needs of the end user that I can translate into technical requirements for the application

**Questions:**

Q1: How long have you been a dog owner?

Q2: How often do you walk your dog?

Q3: Roughly how far do you walk each time?

Q4: Do you walk a set route, or do you change it and if so, how often do you change the route?

Q5: Would you like to walk different routes more often?

Q6: What is stopping you from walking more varied routes?

Q7: Is there anything else that you would like to see on the app?

### 1.5.3 Brainstorming:

**Why brainstorming?**

Brainstorming is a creative and efficient way of generating and vetting ideas, it will allow for the general idea for the application to be discussed while also identifying things that can be added, changed or gotten rid of. Potential additional features and functionality of the app can also come from a brainstorming session with suitable participants.

**What is the objective?**

The objective of the brainstorming session is to solidify the initial idea, to figure out what the bones of the application will be, after that the group will work to identify other potential features or functionality for the app and discuss the feasibility of each proposal and how it will benefit the user. The brainstorming session will also aim to identify any possible roadblocks the project may incur and mitigate these as soon as we can to allow for an easy development process and on-time completion.

**Who will take part:**

The brainstorming session included 4 people – the subject matter expert (a veterinarian), a software engineer, a professional dog walker, the business analyst for the project and 2 end users.

**Location of brainstorm:**

The brainstorm took place at Costa coffee shop, Drimnagh Road.

**Date of brainstorm:**

This brainstorm took place on Wednesday the 2/02/2022.

**Time of brainstorm:**

This brainstorm took place at 11:30am and lasted 35 minutes.

**Brainstorm guidelines:**

- a) Participants must arrive at least 10 minutes prior to set time to find parking, seating etc.
- b) Mobile phones must be switched off and placed on table.
- c) No participant is to be spoken over or interrupted while speaking – every participants opinion will be valued equally.
- d) No criticism is allowed of ideas – only adding to (piggybacking) suggested ideas is allowed.

#### 1.5.4 Prototype:

Objective of the prototype:

The objective of constructing a non-functional prototype using wireframes was to allow stakeholders such as the subject matter expert, software developer and end users to get a look at how the application will appear graphically. This will allow the identification of any potential display errors such as sizing, accessibility issues or general UX issues like too many CTA's or difficulty navigating through the UI.

Participants:

1. Software Developer
2. Subject Matter Expert (VET)
3. End User 1
4. End User 2
5. Business Analyst

### 1.5.5 Document Analysis (Competitor Reviews):

**Objective:**

The objective of the document analysis is to analyse the reviews left of our competitor – MapMyRun’s app in the Google Play Store to identify if there are any features that receive large amounts of positive or negative feedback that we can implement in the app or avoid using.

**Participants:**

- Myself - Student

**Date of document analysis:** 4/3/2023

**Time of document analysis:** 10:00am – 2:00pm

**Preparation:**

- Decided on competing app to analyse
- Decided on app store or Play Store
- Copied 50 reviews
- Pasted to Excel
- Categorised into Good and Bad columns

**Result:**

Due to the large amount of reviews I took a sample of 50 reviews – of which I categorised into good and bad, from there I grouped the good and bad reviews that were similar and extracted 6 insights, 2 negative and 4 positive.

**Positive:**

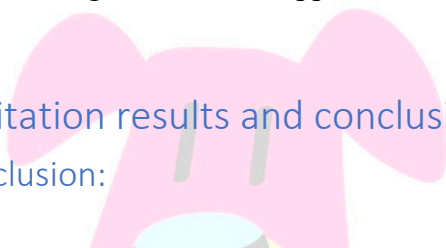
- Voice over functionality e.g., distance covered 1 kilometre
- Can connect to smart watches such as Apple watch and Garmin
- Can add note after run and add a photo
- Works without Wi-Fi

**Negative:**

- Ads on free version
- Glitches after updates

These insights have allowed us to highlight what it is that users enjoy about the app and what causes them to complain, we want to make the app as simple to use and pain-free as possible for our customers and so we have taken these insights into account. For example, connectivity to smart watches will be a feature down the road but not part of the MVP, we understand that people enjoy the statistics provided by these watches such as calories burned and therefore it is something we will look to incorporate into Let’s

Walk! We also think the ability to add a note and photo after a route has been completed is a really cool feature and something that would be popular within Let's Walk!, however the voice over functionality of MapMyRun is less applicable, this is used for runners to notify them of their distance covered, their pace and split pace and we fail to see what would need to be highlighted to walkers other than distance covered and this can simply be found within the app, adding it as a voice over is something that will be a 'Can Do' and will be added to a backlog of functionality. The app will require Wi-Fi and will display advertisements on the free version – however, these advertisements will be completely relevant and offer dog related products and services and we plan to advertise fund raisers for a number of charitable organizations such as DSPCA and Dogs Trust. As far as glitches after updates, this is something we will try to avoid by carrying out in depth testing to ensure the app is free of bugs before being released.

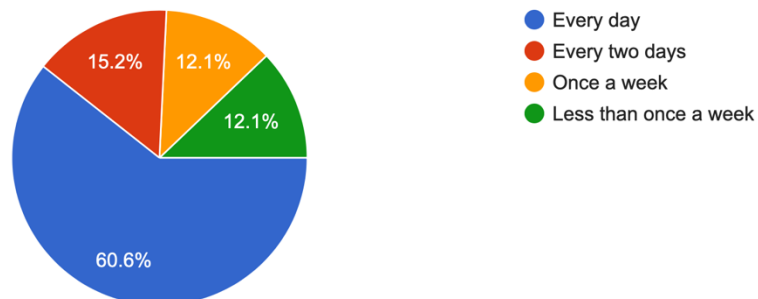


## 2. Requirements elicitation results and conclusions:

### 2.1 Survey results & conclusion:

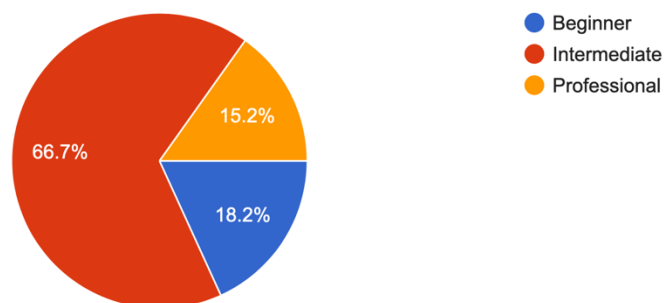
How often do you walk your dog?

33 responses



What level dog owner would you consider yourself?

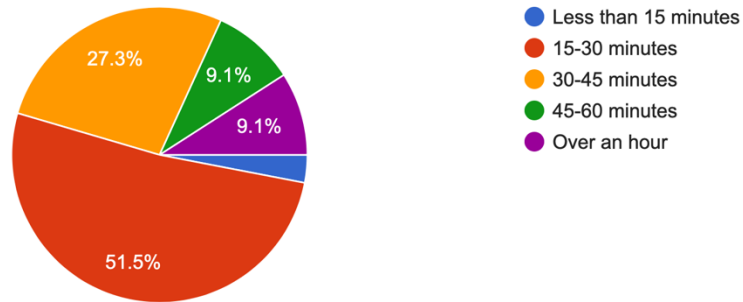
33 responses





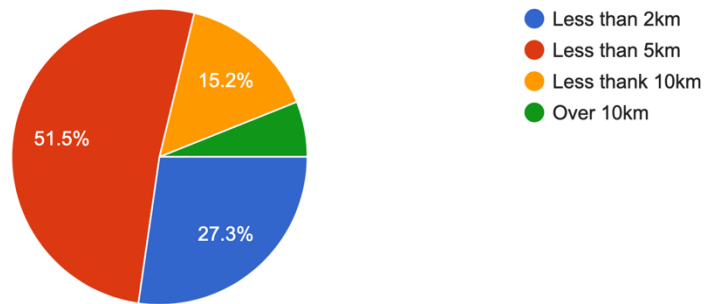
### How long do you spend walking your dog?

33 responses



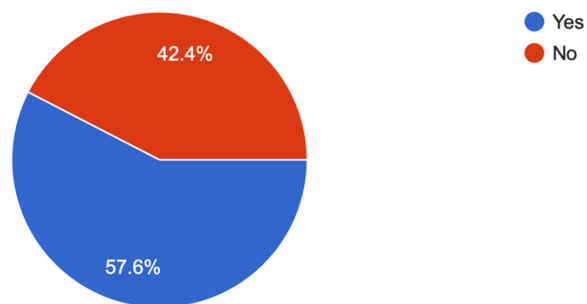
### What distance do you cover on your walk?

33 responses



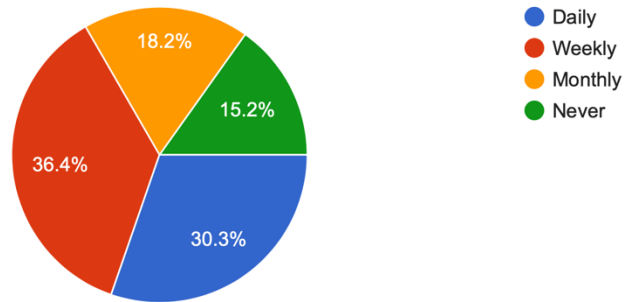
### Do you have a set route you walk?

33 responses



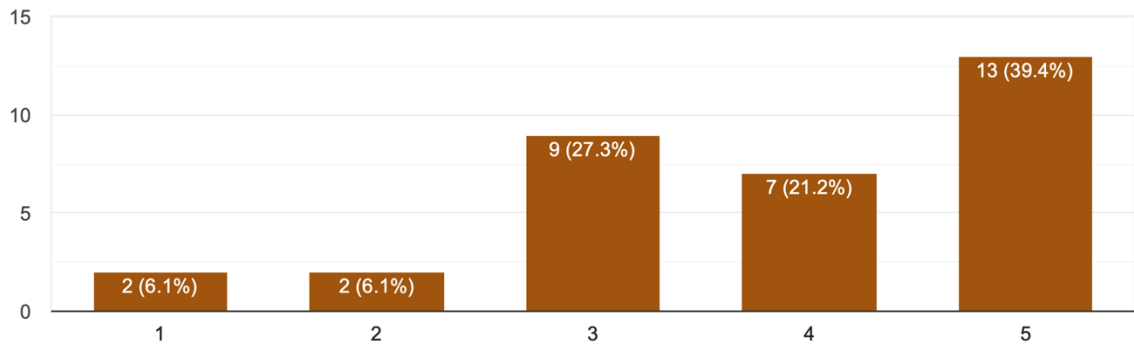
### How often would you change your route?

33 responses



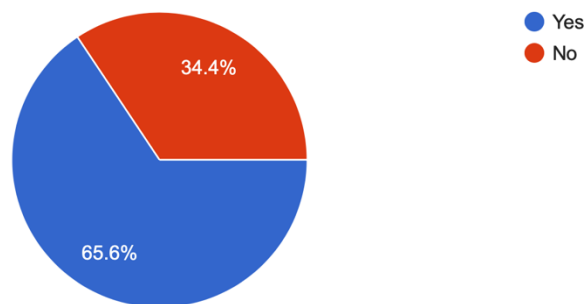
### From the description, how likely would you be to use Let's Walk! ?

33 responses



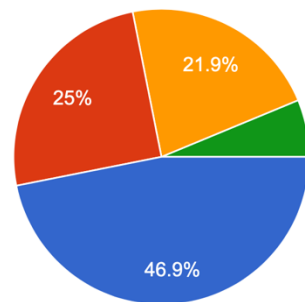
### Do you purchase pet products online? (food, accessories etc.)

32 responses



### What additional feature/functionality would you find most useful?

32 responses



- Ability to offer your services as a professional dog walker - ability to book a walk for your dog with a walker in yo...
- Ability to buy dog food, leads, harnesses etc. from the app
- An in-app forum for asking and answering questions of fellow dog owners?
- Ability to friend/follow and chat with dog owners in your area

### What other feature or functionality would you like Let's Walk! to have?

14 responses

- None as it seems to cover everything
- Nothing it has it all
- Over night stays
- Have help on if things you need to ask sometimes
- Dog breed app
- A lost of local/good dog groomers and minders in the local area
- Be told how far I need to walk my dog
- Information on how far to walk for different breeds
- list of scenic walks in my area
- A reward for doing x amount of walks, maybe a discount code for dog food?
- Have someone call to the house to walk and feed the dog on a daily basis for elderly owners
- A leaderboard for best walker in your area?
- Less is more!
- suggestions of nice walks in the Dublin area

### Survey Conclusion:

The survey was conducted among classmates in NCI and the general public to allow the biggest variety of answers possible, in order to get opinions of those classed in each of the three levels of dog walker beginner, intermediate and professional, this allowed for varied results and not just answers from one of the aforementioned categories. The survey was posted online using Google forms and had 33 results, all of which were displayed using various charts such as pie and bar charts as well as long text answers listed. The survey was helpful in identifying how some key statistics for developing the app such as how often people walk their dogs (60% everyday, 15% every two days, 12% once a week and 13% less than once a week) and the most popular times (51% choosing 15-30 mins) and distances (52% choosing less than 5km) people walk their dogs and also the frequency of new routes being provided to users of the app with 66.7% of people wanting a new route at least weekly if not daily. It also identified a strong interest in the development of such an app with 39.4% of people answering 5 on a 1-5 scale of likelihood of using the app (and 21.2% answering 4). It also identified a highly requested functionality (of 4 possibilities) with over 47% of people asking for the ability to register as a dog walker or to book the services of one, 25% of people voted for the ability to buy dog food/accessories directly from the app which would provide a source of income for the app.

. Of the 33 responses over 50% said they had a set walk they take their dog on and so this has made it clear that a new route everyday may not be needed, rather the option to generate a new route as well as suggestions for new scenic routes in the users area. The final question of the survey which was “what other features/functionality would you like Let’s Walk! to have?” received a variety of answers such as “a leader board of best walker in your area”, “A reward for doing x amount of walks, maybe a discount code for dog food?” or “a list of local/good dog groomers and minders in the local area” as well as many others, this part of the survey was helpful in generating ideas for supplementary features/functions of the app to go alongside the route generator and daily reminders.

### **Results of the survey:**

After analysing the survey results the results clearly show there is a requirement for:

- Ability to generate new routes
- Ability to register as a professional dog walker – ability to book a walk for your dog
- Scenic walking route recommendations
- Ability to arrange daily dog walks and feeds for elderly owners
- Custom frequencies for reminders and custom times/distances of walks for different owners
- Recommendations for distance/frequency of walks for different dog breeds
- Ability to buy dog food/accessories directly from the app

## 2.2 Interviews results and conclusions

### 2.2.1 Interview one results and conclusions:

#### Results

#### **Q1: How often would you recommend a dog is walked?**

It really depends on the breed of dog; some dogs need a couple of walks a day but in general a daily walk of at least 15 minutes is enough for a dog. If you walk your dog for more than that don't forget to give them a day off every now and again it's not good to walk for ages every single day. In some cases, longer walks like an hour or more may be needed for example, working dogs or hound breeds but a companion dog is okay with a daily 15-to-30-minute walk.

#### **Q2: What distance would you recommend they are walked?**

2-3 kilometres is plenty to begin with, any more than that and you will need to give them a rest the following day so if a daily walk is needed keep the distance low initially and train towards walking further, otherwise you'll have all sorts of muscle, tendon, ligament, and joint problems.

#### **Q3: What do you think of the initial idea for the app? Is there anything you would add, change, or get rid of?**

I think the idea is great! There's certainly nothing like it I've heard of anyway, I know there are other sites and apps that you can book a walk but the fact it gives you new routes is really good, I live in a fairly new area to me so it can be hard to think of places to walk. I think I would add recommendations for how far and often you need to walk your dog based on the breed as this is something not a lot of people are aware of.

#### **Q4: Do you think there is a benefit in changing up the route you walk your dog? Why?**

Well mentally it is more stimulating for dogs to go to new places and see and smell new things, physically I can't see any benefit other than maybe if it was high in the mountains, it would improve their fitness but for the average dog there is no real physical benefit to walking in different places. Personally, I think the biggest benefit of varying routes would be to the owner rather than the dogs, walking the dog can become a bit of a chore if you're taking the same route day in day out and so being given different places to go would spice it up and make it more fun and interesting.

#### **Q5. Do you think in general this app would be used by dog walkers? Why?**

Yes absolutely, there is already a market for dog walking services so to combine this with a unique feature like a walk generator is definitely going to be popular. I think the

walker rating is another reason people would download the app and keep using it, it gives them a sense of accountability and would be a reason to not miss the daily walk. It is also sort of a fitness app for themselves that includes their pet so that's a win-win, everywhere you go you see people walking or jogging so to include the dog would be great.

## Conclusions

**Q1:** Was helpful in identifying the need for custom recommendations for users depending on their dog, although a 15-30 minute walk is enough for the majority of breeds it may not be for a selection. We will need to research the recommended walking distances and frequencies for various breeds so the recommendations would be accurate for all users.

**Q2:** Again identified that there is a need for breed-based recommendations for users in terms of distance needed, it also identified that there is a potential need for a training feature for new owners with young dogs to build them up to long walks.

**Q3:** Validated the need for the app and the fact that our SME thinks it is a good idea and would be used, this also resulted in an off the record promise from her to recommend the app to her customers free of charge, which will be a great source of marketing and promotion for the app. We also agreed that the biggest thing that needed to be added to the app was breed based recommendations for users for the distance and frequency of walks needed.

**Q4:** Another form of validation that using the app would be beneficial for dogs and their owners, it was a little bit of a knock back to hear that there isn't any real physical advantage for the dog to vary the route but the mental advantage for both the dog and owner is enough for us to continue with the app and to believe it will be beneficial for users.

**Q5:** We spoke more on the likelihood that people would use the app, her answer was similar to the data from the survey, her opinion is that people are highly likely to use the app. The fact that there is no apps similar will be a driving factor in its popularity.

### 2.2.2 Interview two results and conclusions:

#### Results

**Q1: What is your initial opinion of the app? Is there anything you would add, change, or get rid of?**

I think the app is a really good idea, it's not something I have seen before and would definitely be something I would use. I think you need to focus on one part rather than 3

or 4 things, either it is a route generator or a booking service – personally I think you should push the fact that it can generate routes that are as long as you want and start and end at your house, this is more unique than a booking service and on top of that I've felt a decline in the amount of people getting their dogs walked by a professional, the cost of living crisis is definitely making people cut back on these sort of expenses and walking their dogs themselves.

**Q2: Roughly how many customers do you get in a week?**

Daily I walk between 8-10 dogs, but the duration of the walks varies between 15 minutes up to an hour, overall, I spend about 5 hours a day walking and 2 hours organizing future walks, advertising, and getting back to people. It's hard to say how many customers a week because it varies a lot, but I suppose you could say 40-50 walks a week over roughly 25 hours.

**Q3: Are these customers mostly one-off walks or recurring customers?**

The majority are regulars, once a customer gets used to getting their dog walked, they find it hard to go back to squeezing it into their day, so I get a large amount of repeat custom. Some are once offs like if someone is sick and can't bring their dog out, they might contact me, but it is very rare that someone gets me once and doesn't get me again if they really do need a dog walker.

**Q4: How do you advertise your service? How do customers contact you?**

Mainly through social media, I have a Facebook page and an Instagram page that I use as my primary source of online advertising – this is also a way of getting in touch with my, customers can send me a message there to enquire or to book a walk with me. I also spend some time each day dropping leaflets in to houses, especially if I am walking in a new area – this is a surprisingly effective way of getting customers, the leaflets include a little bit of information about me, my rates, and my phone number so they can send me a message or give me a call.

**Q5: Would you use the app? Why?**

Absolutely, the primary function of a route generator is enough to get me to use it, so many times I have been called to walk a dog in a new area and I am a little bit anxious about getting lost but being able to enter in my start and end point and be given a route would be such a handy thing to have, especially considering the amount of walks I do and the variety of distances I cover – having an app to do the thinking for me would be brilliant. Also, having the ability to list myself as a walker would be another place to advertise my service and hopefully would produce more customers. I would be 100% a user of "Let's Walk!" if it was to be developed.

Conclusions

### **Q1.**

This answer made me look at the project through an agile viewpoint – developing an MVP initially would be the best approach and from the answer it is clear to me that the route generator is the most important functionality, this will also affect the MoSCoW analysis of the project i.e., the route generator functionality is a must have of the app and the other features like the store and recommended routes are could haves. Also, she mentioned that she has noticed a decrease in customers due to the cost-of-living crisis – by the app being user friendly to both professional dog walkers and regular dog owners this puts us in a position where regardless of the state of the economy the app will be popular i.e., if people can't afford dog walkers they will use Let's Walk! themselves and if they can afford it, it will be used by their dog walker.

### **Q2.**

If one dog walker has approximately 40 customers a week, all of which are potentially in different areas they are likely to make use of the app, this multiplied by the number of walkers makes a strong case for the use of the app. It also put into perspective how much thought goes into walking a dog that isn't yours in an area that you aren't familiar with, for example if a customer requests a 30-minute walk for their dog or you yourself want to spend 30 minutes walking your dog it is hard to know where to go that will take that amount of time.

### **Q3.**

The fact that a high number of her customers are repeat customers can be seen as either a negative or a positive – the more familiar she is with an area the less she needs the app as she might know where to go but on the other hand, she might use the app to generate a new route for both her own stimulation and the dogs.

### **Q4.**

The current advertising methods for professional dog walkers could do with an improvement – without skills and knowledge of marketing it can be difficult to boost the reach and engagement of a social media account or page – also, a lot of people have placed notices on their door saying “No Junk Mail” making it obvious they do not want to receive any unsolicited advertising put through their letter box. This limits a dog walkers' ability to reach potential customers, by having an application that connects dog walkers and customers will allow them to improve on their own advertising and increase their client base – also, by having an account it will make it easier for customers to trust if they can see a photo of the walker, read their information, and potentially read feedback given about them.

### **Q5.**



Hearing such positive feedback about the application is a great confidence booster and confirms my own thoughts and opinion, before this interview I was thinking about the app through the eyes of the customer, but now I realise how much of a tool it could be for professional dog walkers which increases its target audience and its potential user base. The more people who can find use for the app the better.

### 2.2.3 Interview three results and conclusions:

#### Results

**Q1:** Can we define what would be feasible to include in the scope for the first iteration of the app due to launch in May 2023 (6 months)?

Firstly, we need to define an MVP for this project, an MVP for this app we would need to focus on the core functionality – generating routes, this should be reasonably easy to achieve within that time frame. We would need to nail down the customer journeys for account holders and guest users, the guest user functionality could be the MVP and we can iteratively add the rest, notifications, profile pictures, recommended routes etc. To generate the routes, we will need to implement an API, potentially **Geoapify's**. Once that functionality is implemented, we should focus on creating a clean easy to navigate user interface to gain as many users as possible, it's vital that we make the app easy to use to ensure these users continue using the app through the other iterations. A bad MVP would make it harder for us to get users further down the line when we increase the features of the app. But yes, to summarize it would be possible to get an MVP over the line in 6 months and potentially even a handful of other features.

**Q2:** Would it be possible to generate a new route and notify the user that it is ready without any input from them?

This would probably be a feature made down the line and would require initial input from the user in terms of start and end point and distance, once these have been selected it would definitely be possible to generate different routes in the background, but we would need the user to enable push notifications for them to get the daily reminder without opening the app.

**Q3:** Would it be possible to make the app accessible without internet connection?

Not really, you could have saved routes and minimal functionality but to generate a route an internet connection would definitely be needed. This is something we could look at however and potentially develop some features that are specifically purposed for offline use.

**Q4:** What potential issues might we face during the development of the app that we can try to mitigate?

Scope creep is a big one, I've worked on projects where the scope just keeps getting bigger and the finish line doesn't get any closer for months at a time, the best way to avoid this is to have a clear, well defined plan of what the project will entail with as much detail as possible – by having this plan in place it is easier to track progress and to tick things off as they are completed.

Poorly thought-out features and functionality is another, we need to make sure that each feature or function is both valuable to the user and the application but is manageable for ourselves on a limited budget and timeframe, not only will a poor feature affect the quality and UX of the app, but it will delay and take resources away from other aspects and elements of the project.

In terms of technical issues, there aren't too many that couldn't be solved, it sounds like a straightforward enough idea and shouldn't be too difficult to develop, especially when being carried out by an experienced developer and managed by someone who knows the ins and out of the project.

**Q5:** What level of maintenance will the app require once launched?

Maintenance would be minimal, we could carry out updates and bug fixes every two weeks or so, potentially more frequent early on as we add features but once we get the app to a place where it has pretty much all of the functionality, we want it would be maybe once a month where the code can be given a once over and ensure everything is as it should be. For any major bugs they can be fixed on an ad hoc basis.

## Conclusions

**Q1:** This answer was helpful as it allowed us to identify an MVP for the application, however, we would ideally like to include all functionality in the application from the start as to make it as appealing to users as possible. It did however confirm that the plan is achievable and therefore realistic given the time frame. Although it is not going to be developed as part of the project it is still important to have realistic goals and timeframes for the project so that it could be implemented in the future if wanted/needed. It was also beneficial as it reminded me that not only do we need to have well designed UI and logo etc. we also need to pay close attention to the user journeys and make them as simple and intuitive as possible to make the app accessible to people regardless of their ability level with technology and mobile apps.

**Q2:** It was great to confirm that some of the functionality is possible by an experienced developer, it is important to actually confirm if and how things would be one while researching a development project.

**Q3:** The fact that the main functionality of the app would not be accessible without internet connection has made it evident that we need to decide if the application will be completely internet dependant or if we can add features that are available while the user is offline, for example a calculator that recommends the amount of walks or distance a dog needs to be walked based on variables like size and age.

**Q4:** It was great to identify some potential issues so that we can be aware and avoid them as much as possible – this is a crucial part of planning any project, by being aware of a potential issue it allows us to put a plan in place to react should it happen. Without this a project could come to a halt adding to the timeline and budget or worse end the project if the issue is big enough.

**Q5:** The maintenance question was one that I feel is not thought of a lot when starting a project – all of the focus goes on starting the project and then getting it to the finish line but I think it is important to know what will be needed to keep the app working for users and also to understand what will be needed from ourselves after the project has been completed.

### 2.2.3 Interview 4 results and Conclusions

#### Results

**Q1: How long have you been a dog owner?**

I've had dogs for as long as I can remember, all kinds of dogs too – my dad used to breed Jack Russels, the dog I have now is a 3-year-old Boxer named Ali.

**Q2: How often do you walk your dog?**

I walk Ali every day and twice some days if I have the time, I think she needs to get out every day, I have a very small garden and she's a big dog, so it feels wrong to walk her any less.

**Q3: Roughly how far do you walk each time?**

I try to get her out for at least 1 or 2 kilometres, but I don't tend to measure so it could be more or less, I'm not sure. I've Googled it and it says that that's enough, but different websites give different answers.

**Q4: Do you walk a set route, or do you change it and if so, how often do you change the route?**

I try to change it up as much as I can for Ali and for myself, its hard sometimes to think of places to walk that aren't going to lead you to a dead end or be too busy, I don't live near a park, and I don't drive so I'm fairly limited in the places I can walk to near the house. I try to change it up every couple of days, at least 1 walk a week will be to somewhere different or somewhere we haven't walked in a while.

**Q5: Would you like to walk different routes more often?**

Yes ideally, it can get boring for myself, and I've read that switching up the routes you walk is good for stimulating the dog and she would enjoy it. The app sounds like a great idea and something that lots of people would use, I just wonder if the routes that are automatically generated would be great for walking, as in not walking up and down the same road and down busy streets and things like that.

**Q6: What is stopping you from walking more varied routes?**

As I said it's the fact there's no park or walking tracks near me so its hard to think of places to take her without getting lost or taking her somewhere that is super busy and make her nervous.

**Q7: Is there anything else that you would like to see on the app?**

Nothing that I can really think of, from the sounds of it I would mainly use the route generator and maybe I'd use it to find a friend to walk with in the area but as far as the challenges I think this might take the enjoyment out of walking the dog and turn it into another chore that HAS to be done not something I WANT to do.

Conclusions

**Q1: How long have you been a dog owner?**

This question was just an ice breaker and a way of validating that the interviewees opinions were based on real experience of owning dogs.

**Q2: How often do you walk your dog?**

This question was to get an understanding of how often Ali was walked and highlighted the potential need for a function that allows users to enter their dogs breed and be provided with recommendations around how often and how far they need to walk their dog.

**Q3: Roughly how far do you walk each time?**

This backed my thought process that users need a way of knowing how far and often they need to walk their dog – different breeds and size dogs have different requirements and a tool for this would be helpful and a USP for the app versus our competitors.

**Q4: Do you walk a set route, or do you change it and if so, how often do you change the route?**

This answer proved that our app would help lots of people – not everyone has green areas or walking trails accessible to them and this results in them finding a decent walking route and sticking to it out of handiness and familiarity, not only is this bad for the dogs brain but also makes the walk less enjoyable for the owner, for people living in built up areas Let's Walk! would be a great help, in my opinion.

**Q5: Would you like to walk different routes more often?**

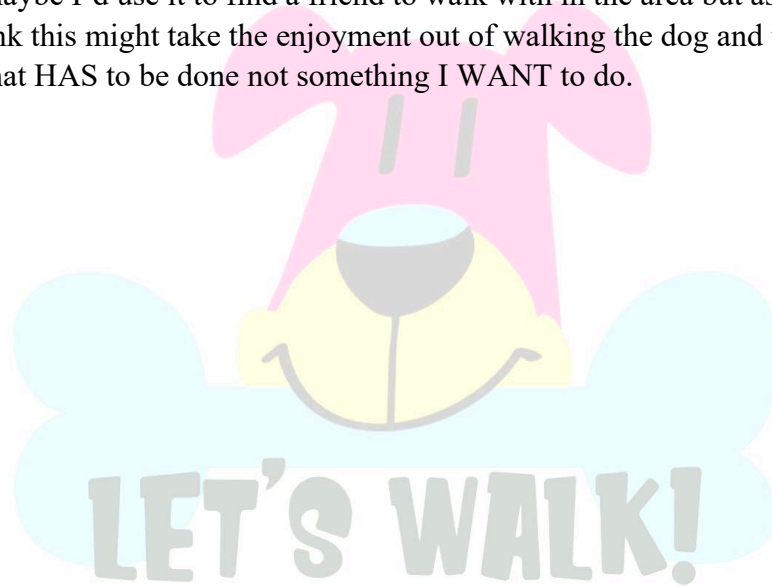
The interviewee provided evidence that the idea for the app is a good one and that our hopes of gaining a large user base are justified,

**Q6: What is stopping you from walking more varied routes?**

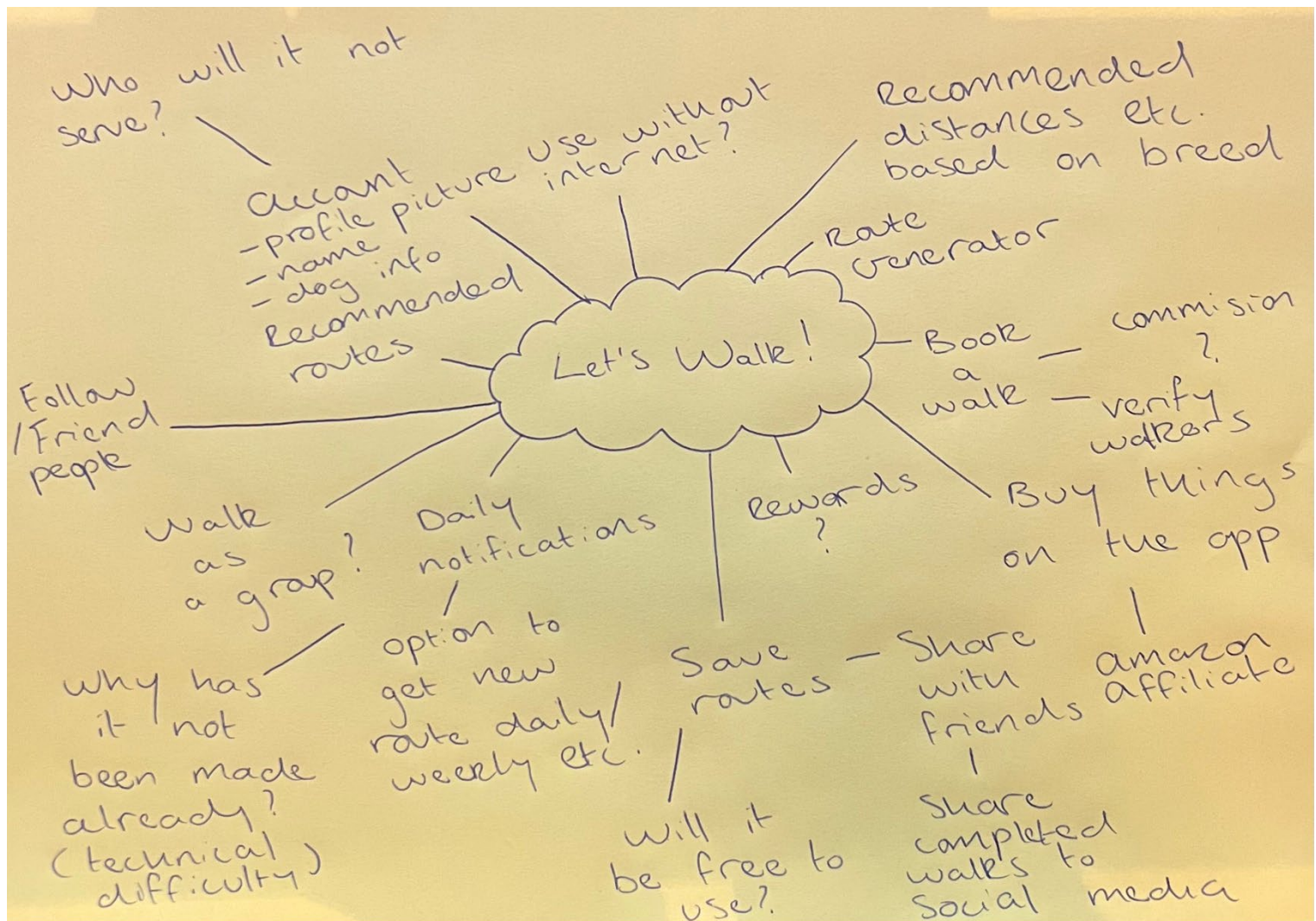
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Nothing that I can really think of, from the sounds of it I would mainly use the route generator and maybe I'd use it to find a friend to walk with in the area but as far as the challenges I think this might take the enjoyment out of walking the dog and turn it into another chore that HAS to be done not something I WANT to do.



## 2.3 Brainstorm:



The brainstorming session was an open meeting of the stakeholders of Let's Walk!, there was no structure to the session and its purpose was to validate the core functionality of the application and also to query any features, it was also an objective to identify the most feasible features we could implement on the app alongside the route generator. This session gave all stakeholders a chance to voice their opinion and ask questions, this was a difficult technique as I had to accept questions and criticism of the idea without becoming defensive and close minded. Overall the session was very successful as we left with a clear idea of what the app was and what it could potentially become further into the project.

### Results of brainstorming session

The session concluded with the following questions and comments

- Who will it NOT serve?
- Account – profile picture / name / dog info
- Use without internet?

- Route Generator
- Book a walk – commission? / verify walkers
- Buy things on the app
- Rewards?
- Daily notifications
- Option to get new routes daily/weekly etc.
- Save routes / Share routes with friends
- Share completed walks/challenges on social media
- Will it be free to use?
- Potential for Amazon affiliate page
- Why has it not been made before?
- Follow/Friend request other users
- Walk as a group?
- Ability to make a group with walkers in your area
- Recommended routes/distances etc. based on breed of dog

Each of these points was discussed in further detail and each broken down into a list of functionality and requirements to begin working on for the first launch of the application, they are:

#### Phase 1.

- Route Generator (random route of custom distance, start and end point)
- Book a walk function (ability to register as a walker and or book a walk)
- Challenges (set a challenge of custom duration, frequency and distance)
- Rewards (different levels of walker based on challenges completed e.g. bronze silver gold)

#### Phase 2.

- Phase 1 functionality
- Profile (add profile picture and information about owner and dog)
- Friends (follow or connect with other dog owners)
- Feed (a social media type feed of posts from followed owners)

#### Phase 3.

- Phase 1 and 2 functionality
- Groups (ability to create groups of owners and walk together/communicate/share photos and videos)
- Shop (a page of dog foods, treats and accessories for sale through Amazon affiliate page)
- Recommendations (ability to enter details of dog and receive recommendations of distance, duration and frequency of walks needed for particular dog)

#### Phase 4.

- Refining of all functionality and improvements based on customer feedback

## 2.4 Focus Group Session

Through my work placement I learned the benefit of focus groups and how useful they can be in increasing the creativity of individuals when spurred on and inspired by the ideas and opinions of others – according to BABOK, Focus Groups are used to “elicit ideas on a specific product, service, or opportunity in an interactive group environment”. (The Business Analysis Book of Knowledge, 2009, p172-174)

### **Location**

My home

### **Date**

### **Participants**

The participants of this focus group were 6 close friends all of which are dog owners and are avid technology users. I thought the fact that they are a friend group would allow them to be open and reduce shyness – this is how I planned to get the most out of the participants and honest opinions.

### **Purpose**

To elicit user requirements – not deep technical requirements but things that everyday users would want in the app and to get feedback on the initial idea and proposed functions.

### **Preparation**

In order to allow the focus group to happen naturally I asked a limited number of questions but ones that I felt would spark organic conversation and debate that I could document and extract insights from.

- 1) How often you walk your dog, how far and why?
- 2) What is the best part of walking the dog and what is the worst part?
- 3) What is your favourite of the proposed functions and what would you add/remove or change?
- 4) What would you do with your dog if you were too busy to walk it?

After the questions had been discussed and the chat came to an end I passed around printed out copies of the initial wireframes to get feedback and answer questions.

### **Result**

The focus group wasn't as productive as I had hoped, the participants answered the questions but they didn't spark conversation like I had hoped – after consideration I think this was down to the questions and the participants, I had anticipated that they would be open and honest but they stayed reserved and offered similar answers to each other to avoid going against the general consensus of the others.

However within their answers and the small amount of additional discussion I was able to extract some insights and translate them into ideas/requirements.



The notes from the focus group are attached in the appendix of this report.

### Ideas/Requirements

After the focus group I took my documentation and typed a list of ideas and requirements that were extracted from the discussion:

- Random routes – random distance.
- Recommended distance with suggested routes of said distance.
- Monthly summary of walks completed.
- Ability to chat with people in your area e.g., ask a favour such as walking your dog just once.
- Ability to create events and make them public or private for people in your area.
- Statistics after a walk such as distance covered, calories burned, steps etc.
- Collaboration with DSPCA/DogsTrust – fund raising ads on the app, premium version of app that gives a percentage to charity etc.

## 2.5 MoSCoW Analysis:

### Must

- FR1 – Homepage Map
- FR2 – Homepage Route Form
- FR3 – Homepage Account Links
- FR4 – Signup Form
- FR5 – Login Form
- FR6 – User Homepage Map
- FR7 – User Homepage Route Form
- FR8 – Menu
- FR9 – Pro Walking
- FR10 – Book a Walk landing page
- FR11 – Register as a Walker
- FR12 – Challenges
- FR13 – Notification slider
- FR14 – FAQs
- FR15 – Profile

### Should

- NFR1 – Logo
- FR16 – Logout
- FR17 – Security
- FR18 – Validation

NFR2 – Miscellaneous

**Could**

NFR3 - Recommended Routes

FR19 - Light/Dark mode slider

FR20 - Register as a Walker

FR21 - Menu additions

FR22 - Auto-generated routes

NFR4 - Prizes

NFR5 - Leaderboard

FR23 -Feedback

**Wont**

FR24 – Offline Functionality

NFR6 - Shop

FR25 – Search Bar

NFR7 – Overnight Stays

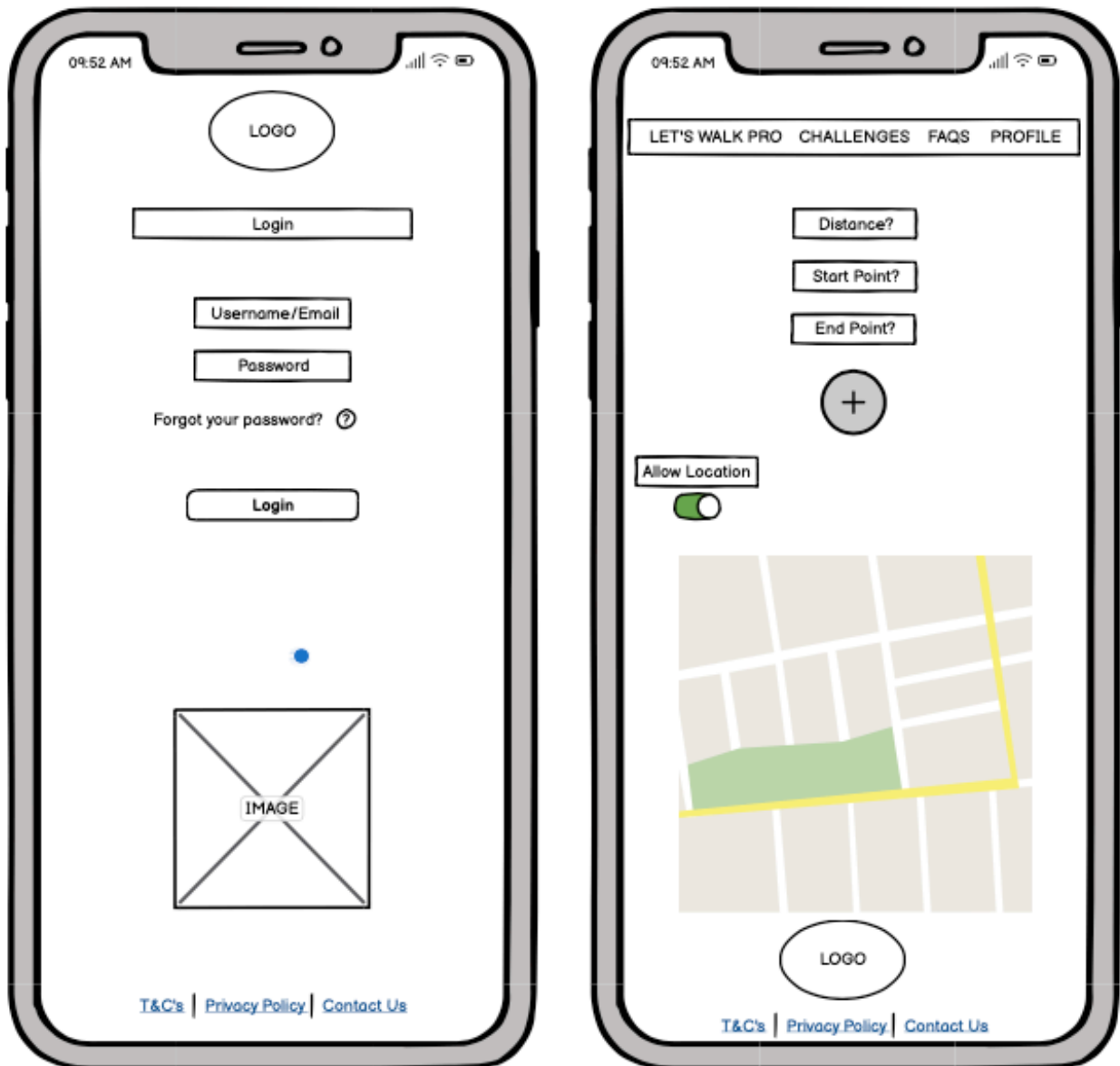
2.6 Wire Frames Set 1:





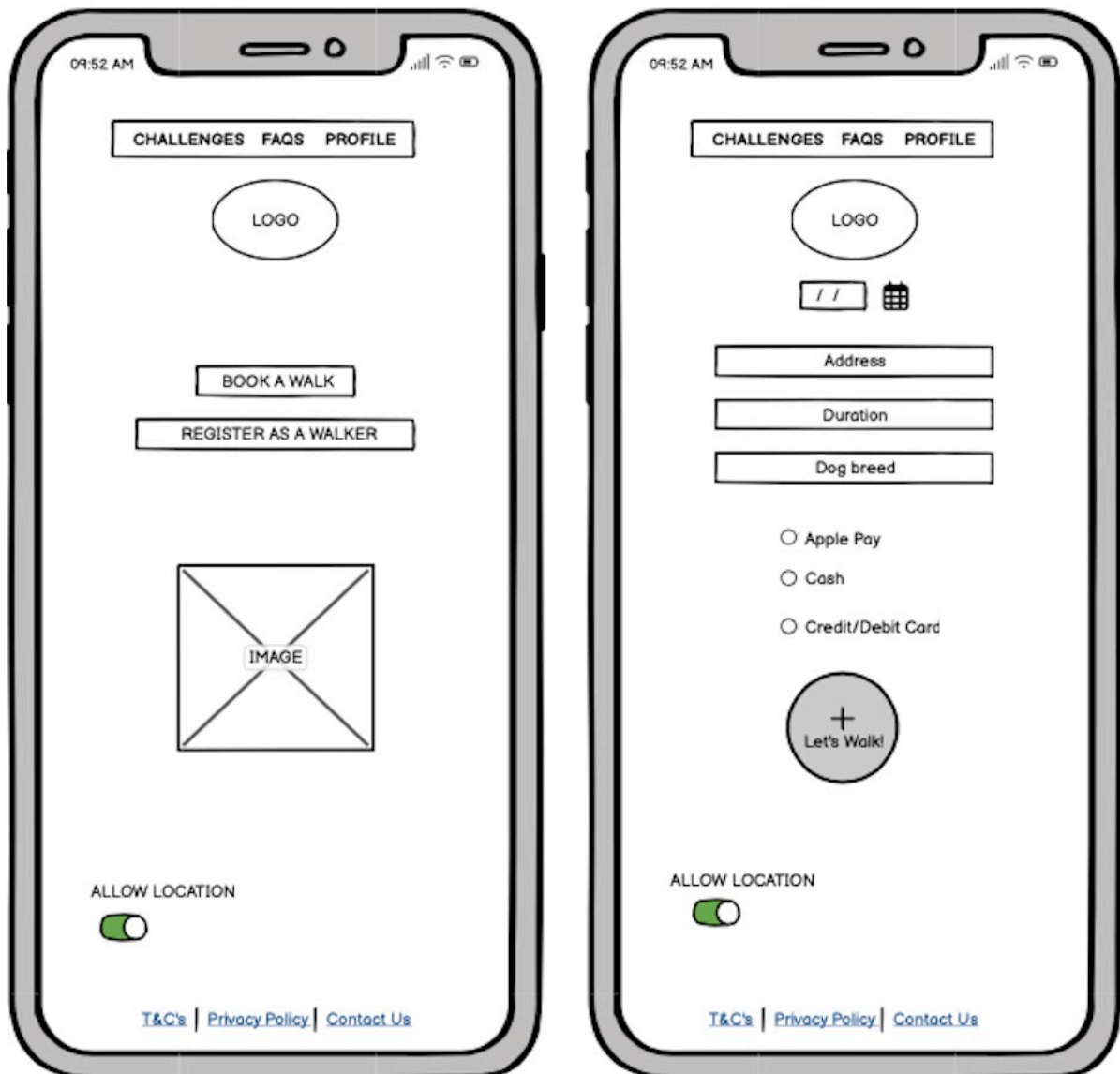
**Wireframe 1** - The first wireframe here displays the initial user interface upon downloading the application. The most visible element is a map which once given access to GPS shows the users location on the map, there is also two links in the top right corner, Signup and Login which bring the user to a form to do either of those. There is a slider button that allows the user to enable location services to give the app access to their GPS location and therefore generate a route for them, below this slider there are 3 fields that must be filled to generate a route, the distance, start point and end point and finally a CTA that will generate a route that satisfies the three variables. At the bottom of the page there is a constant footer which includes hyperlinks to the terms and conditions page, the privacy policy, and a contact page.

**Wireframe 2** – this wireframe shows the form that a user will fill out to sign up for the app, the fields include name, email, password and confirm password and a CTA to complete the form, an image will also be inserted to fill out the page and the footer remains the same.



**Wireframe 3** – this wireframe displays the login form users who have already signed up will access to login to the app, it is quite simple with two fields – email and password and a CTA to complete login. However, the user will also have the ability to request a password reset email through the “Forgot your password?” CTA below the form. Again, an image will be inserted to fill the page and the footer will remain the same.

**Wireframe 4** – this is the initial wireframe for when users have signed up and logged in, it is in essence what guest user see but rearranged, however there will be a new banner menu across the top of the screen with links to the following page – Let’s Walk Pro, Challenges, FAQs, and Profile.



**Wireframe 5** – This wireframe shows what users will see having clicked Let’s Walk Pro, this is a feature of the app for professional dog walkers and so their initial options are to book a walk or to register as a walker.

**Wireframe 6** – This is the form users will fill in to book a walk for their dog, the fields include a date, address, duration, and breed of dog as well as selecting a payment method. This request can then be completed by local dog walkers.



**Wireframe 7** – Dog walkers will have to complete the above form to register, the fields include their full name, their age, phone number, email and IBAN for payment.

**Wireframe 8** – This wireframe displays the “Challenge” section, users can set a challenge for themselves of completing a set amount of consecutive walks. The fields of the form include the distance and frequency of the walks and the duration of the challenge. There is also a slider that allows the user to enable push notifications that will remind users to compete their walk for the day.

## 2.7 Requirements Workshop

The requirements workshop was held to gain feedback from stakeholders on the initial set of wireframes, these wireframes included the requirements that fell into **Phase 1** of the

brainstorm and were included in the **must** and **should** have categories of the MoSCoW analysis carried out. This workshop included the software developer, a professional dog walker and two end users, they provided valuable feedback which will be reflected in the digital wireframes yet to be developed.

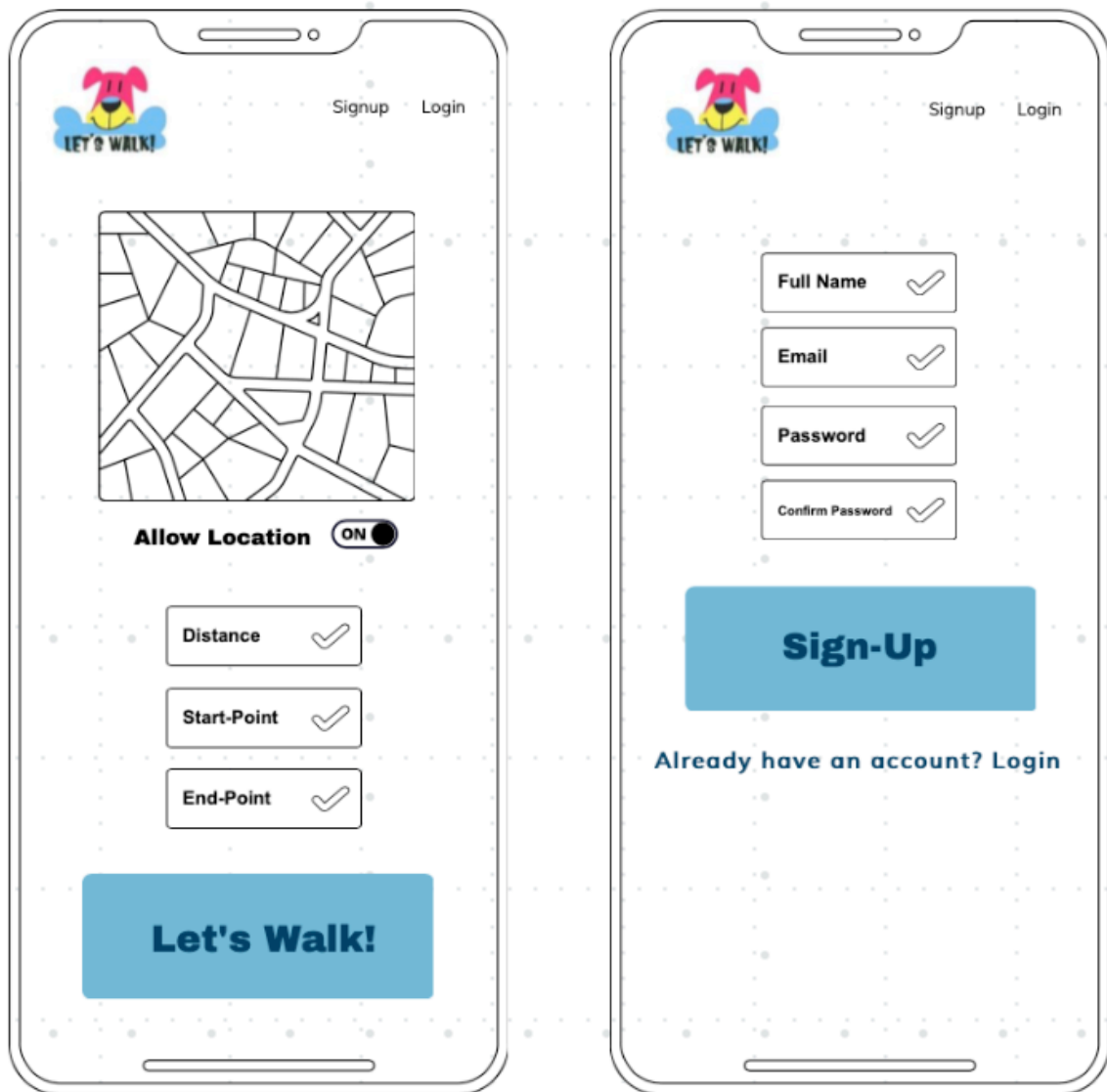
The end users were very happy with the overall design of the app as it looked “very easy to use”, this was a non-functional requirement of the app. Another non-functional requirement being that the app had a uniform look was picked up by the developer and end users who were pleased that each page looked similar enough to navigate but different enough to find your way between them. The professional dog walker was happy to see a simple process to register as a walker and had comments regarding the booking process for customers. The developer assured that the wireframes could be achieved with reasonable ease for the initial release and could easily be updated going forward i.e. “adding links to the menu” to carry users to new pages would be an easy add and would not affect the existing pages. The end users provided positive feedback on the ability to use the app as a guest and a registered user and said the wireframes showed that it would be attractive to register and get access to the extra functionality such as the “Let’s Walk Pro” and setting “Challenges”. The developer was happy that the functional requirements of the must category of the MoSCoW analysis were included in the wireframes in a well-designed manner and had little criticism regarding the layout of the pages.

The stakeholders had limited negative feedback and looked forward to reviewing digital wireframes in the future, the negative feedback included:

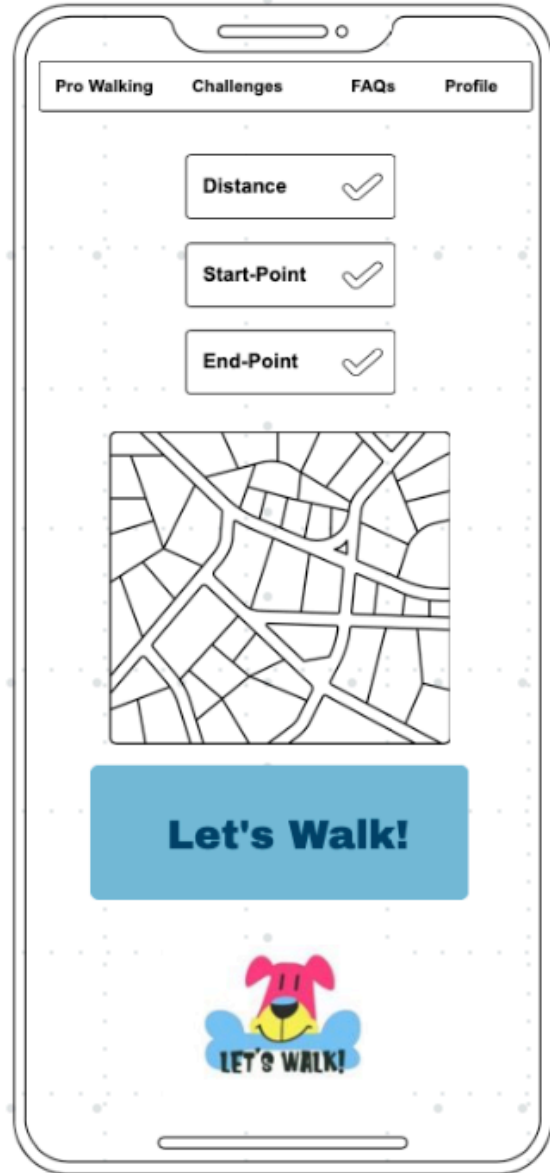
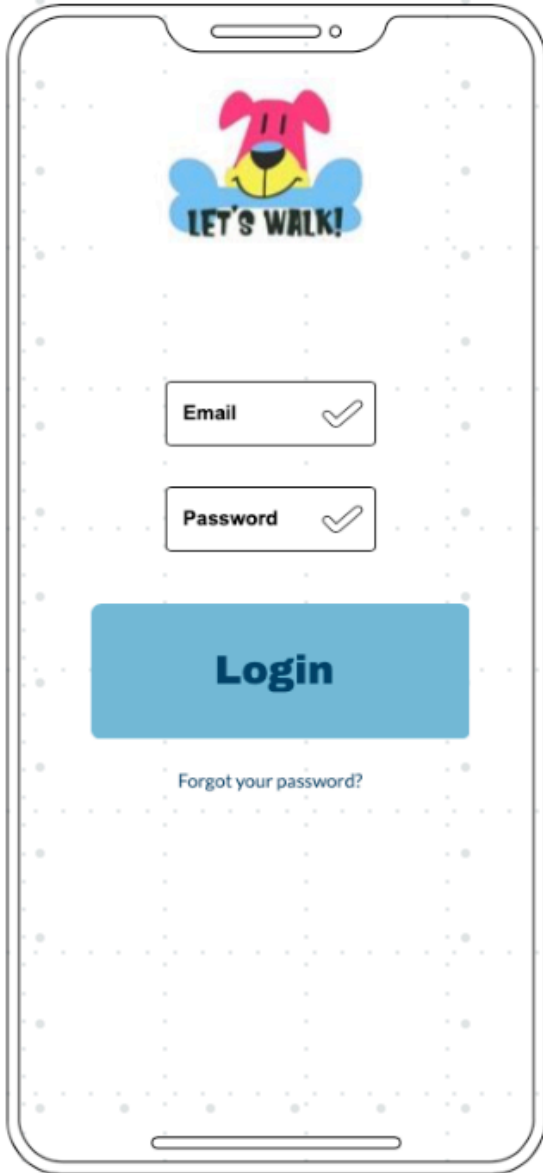
- “Allow Location” slider being repeatedly presented – they would rather this was asked initially and then would be available to turn on/off in the apps settings.
- The form to book a walk didn’t ask for a time – this was simply an error on my side and can be easily added
- “Let’s Walk Pro” was not necessarily the best name as it made them presume they would have to pay – this will be considered and potentially renamed.
- The walker level should be a numeric value rather than a colour – having bronze, silver and gold limits the levels to 3 and the end users agreed that it would be better to be 1-10 for example.
- Logo is too big – although the logo has not yet been selected the allocated logo size in the initial wireframes is slightly too prominent on pages and needs to be reduced.
- Dog size/age be added to form when booking a walk – the professional dog walker felt it would helpful for walkers to know how big the dog will be and if it is young or old so they can recommend increasing or decreasing the distance or duration of the walk.

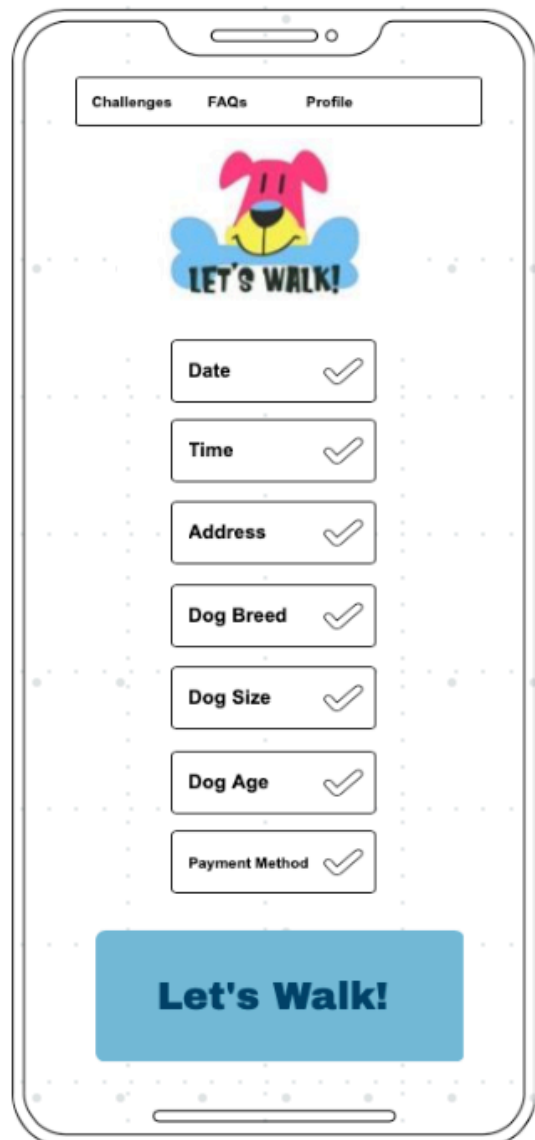
## 2.8 Digital Wireframes Set 1:

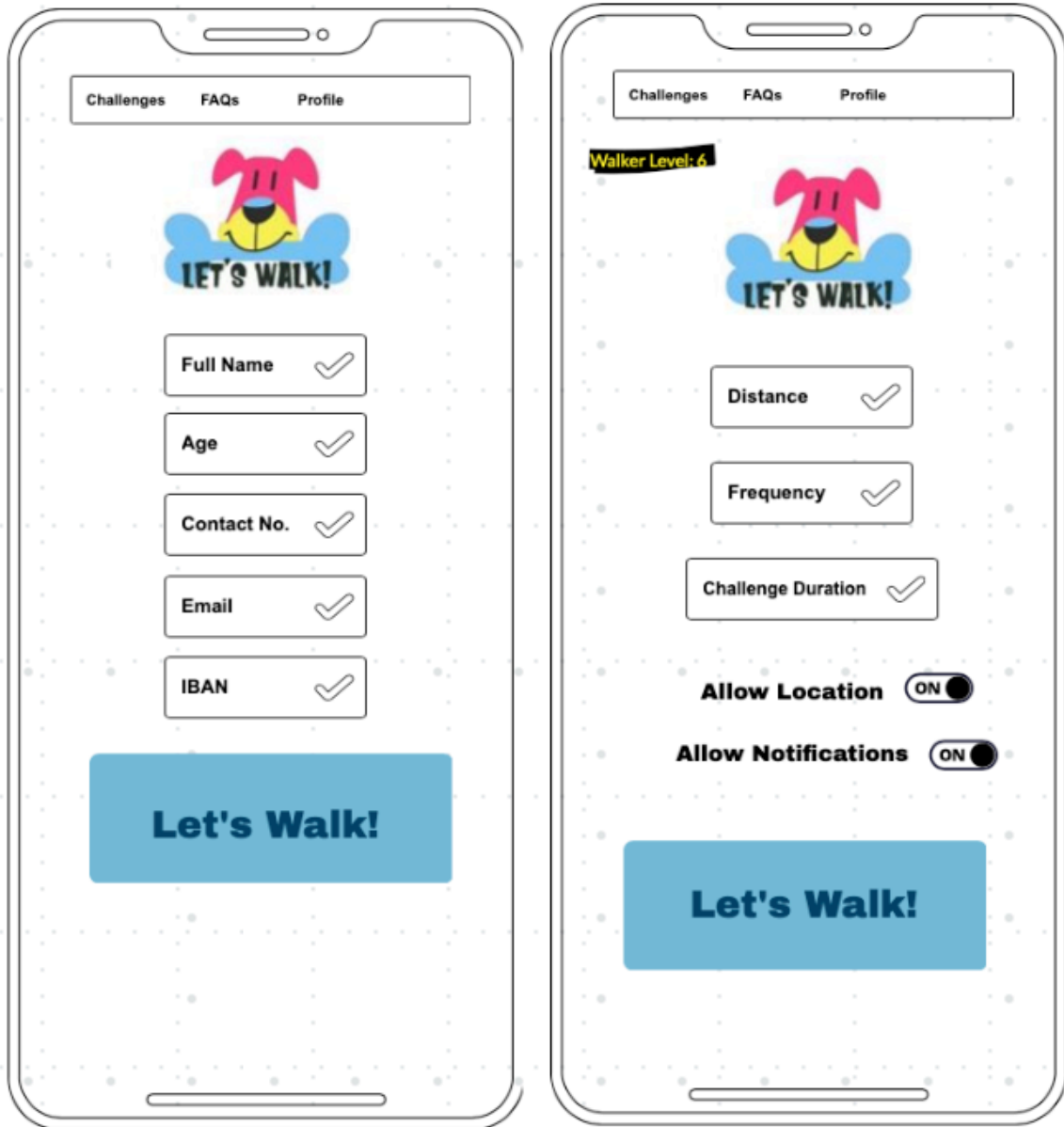
The first set of digital wireframes built on the feedback provided during the requirements workshop, elements such as including the logo, removing the constant option to toggle location services on and off, renaming of the professional dog walking service landing page and others. The CTAs (buttons) need to be redesigned but are a placeholder for the time being to give stakeholders an idea of the size and place position, the menu will also need to be refined and a colour scheme agreed on as the wireframes currently display the app with a white background – which will most likely not be the case for the finalized app. The forms are also subject to change and offer a simple example of where they will sit, the individual fields however may be renamed, rearranged or even redesigned for the final version.



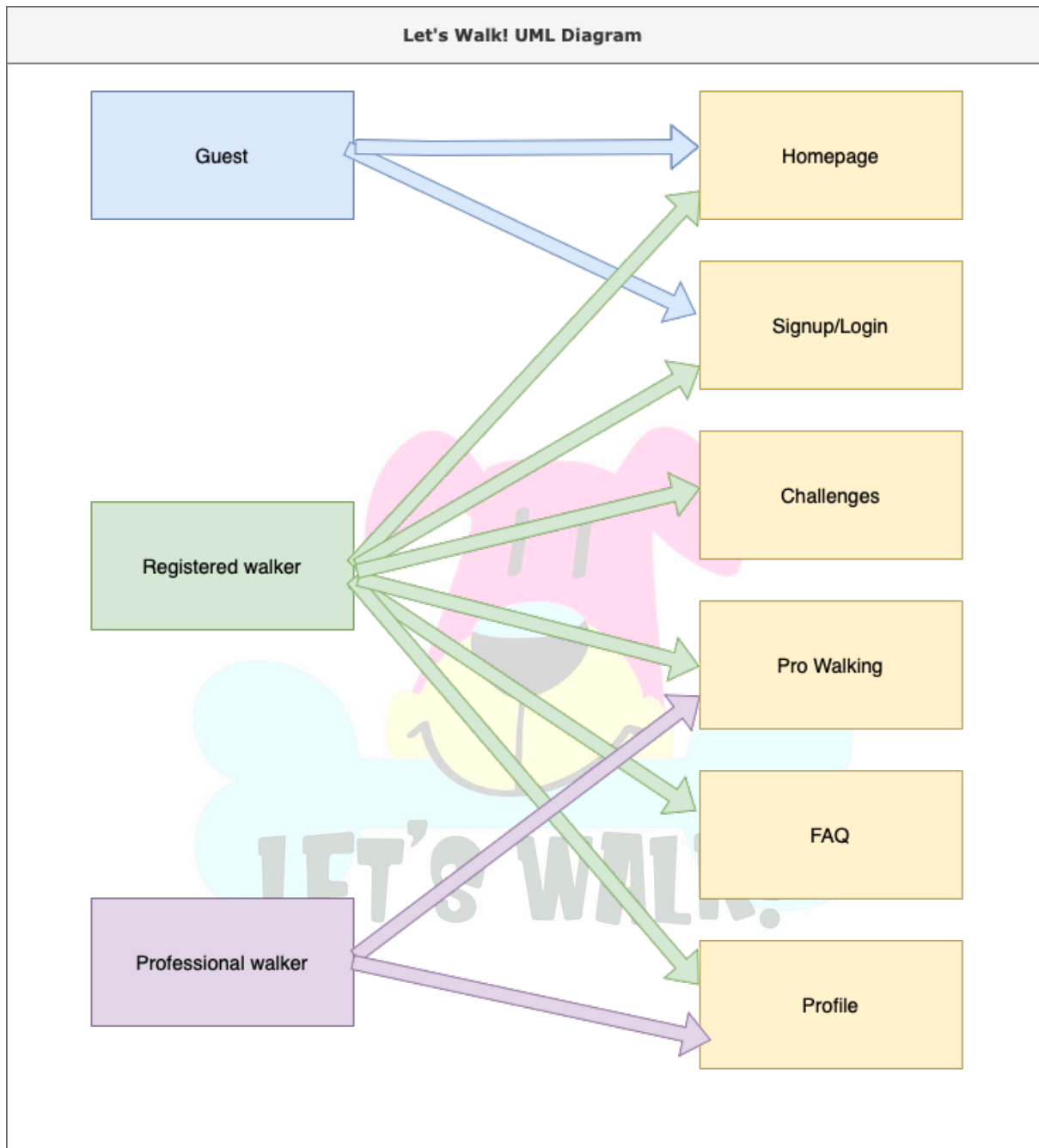








## 2.5 UML Diagram



The Use Case Diagram is used to show how each respective stakeholder will interact with the Let's Walk! app and what pages/sections of the app they will be permitted to use.

**Guest** – as an unregistered user guests will have access to limited functionality i.e., the homepage. The homepage will only allow them to generate a route without any of the other features of the app. They will also have access to the signup form which enables them to become a registered user.

**Registered user** – a registered user has access to every part of the app. Once they have signed up they will have the ability to login and access each section, the homepage will look

slightly different for registered users as they will now have a menu to navigate between the other landing pages.

Professional walker – a professional walker will also have limited access to the app, they will initially sign up as a standard user before completing the signup form within the Pro Walking section of the app. We plan to develop a separate signup form which will allow walkers to register themselves before entering the app. For now they will have access to Pro Walking and Profile.

### 3. IEEE Requirement Specification

#### 3.1 Introduction

##### Purpose:

The purpose of this documentation is to identify and list all functional and non-functional requirements of the Let's Walk app. The document will be used ensure that all requirements set out and agreed upon by the various stakeholders have been met, upon completion all stakeholders will be contacted and the document will be examined by them to allow for any alterations needed to be identified. Thereafter, any outlined changes needed will be made to ensure all stakeholders are satisfied and can sign off on the project.

##### Scope:

Let's Walk aims to solve the problem of repetitive and boring dog walking routes. It offers users an algorithm that generates unique and interesting routes for their daily walks. This app will appeal to dog owners who value providing their dogs with new experiences and environments. It will also cater to people who struggle to come up with fresh walking routes because of busy schedules or a lack of creativity. The app can generate routes based on the user's location and their distance preferences. It challenges users to maintain a routine of walking their dog each day which is beneficial for both their dogs and themselves, it also gives them the option to use Pro Walking which is a booking service for users who need someone to walk their dog whether that be a once off or recurring need. This idea combines the ideas behind other apps such as RouteShuffle and Wag to make a one stop shop for tech savvy dog owners. Overall, Let's Walk! offers a valuable and enjoyable experience for both dogs and their owners.

#### 3.2 Functional Requirements

<b>Functional Requirement 1</b>	
<b>Identification Code:</b>	FR1
<b>Title:</b>	Homepage Map
<b>Description:</b>	The app must display a mini map that once location is enabled shows the user's location.
<b>Location:</b>	This is located on the Homepage
<b>Priority:</b>	Must have.

<b>Functional Requirement 2</b>	
<b>Identification Code:</b>	FR2
<b>Title:</b>	Homepage Route Form
<b>Description:</b>	Fields: distance, start point, end point. CTA
<b>Location:</b>	This is located on the Homepage
<b>Priority:</b>	Must have.

<b>Functional Requirement 3</b>	
<b>Identification Code:</b>	FR3
<b>Title:</b>	Homepage Account Links
<b>Description:</b>	Hyperlinks to sign up and login forms.
<b>Location:</b>	This is located on the Homepage
<b>Priority:</b>	Must have.

<b>Functional Requirement 4</b>	
<b>Identification Code:</b>	FR4
<b>Title:</b>	Signup Form
<b>Description:</b>	Fields: name, email and password. CTA
<b>Location:</b>	This is located on the Homepage
<b>Priority:</b>	Must have.

<b>Functional Requirement 5</b>	
<b>Identification Code:</b>	FR5
<b>Title:</b>	Login Form

<b>Description:</b>	Fields: email and password. CTA and hyperlink below to “Forgot Password?” process
<b>Location:</b>	This is located on the Homepage
<b>Priority:</b>	Must have.

<b>Functional Requirement 6</b>	
<b>Identification Code:</b>	FR6
<b>Title:</b>	User Homepage Map
<b>Description:</b>	Same as logged out homepage
<b>Location:</b>	This is located on the Homepage
<b>Priority:</b>	Must have.

<b>Functional Requirement 7</b>	
<b>Identification Code:</b>	FR7
<b>Title:</b>	User Homepage Route Form
<b>Description:</b>	Same as logged out homepage
<b>Location:</b>	This is located on the Homepage
<b>Priority:</b>	Must have.

<b>Functional Requirement 8</b>	
<b>Identification Code:</b>	FR8
<b>Title:</b>	Menu
<b>Description:</b>	Navigation with following hyperlinks: Pro Walking, Challenges, FAQs Profile
<b>Location:</b>	This is located on the Homepage
<b>Priority:</b>	Must have.

<b>Functional Requirement 9</b>	
<b>Identification Code:</b>	FR9
<b>Title:</b>	Pro Walking
<b>Description:</b>	Landing page with two hyperlinks: Book a Walk and Register as a Walker
<b>Location:</b>	This is located on the Pro Walking landing page

<b>Priority:</b>	Must have.
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<b>Functional Requirement 10</b>	
<b>Identification Code:</b>	FR10
<b>Title:</b>	Book a Walk Form
<b>Description:</b>	Landing page with form: time, date, duration, address and payment details.
<b>Location:</b>	This is located on the Book a Walk landing page
<b>Priority:</b>	Must have.

<b>Functional Requirement 11</b>	
<b>Identification Code:</b>	FR11
<b>Title:</b>	Register as a Walker
<b>Description:</b>	Landing page with form: Name, DOB, Phone Number, Email, City, Country, PPSN and IBAN.
<b>Location:</b>	This is located on the Register as a Walker landing page
<b>Priority:</b>	Must have.

<b>Functional Requirement 12</b>	
<b>Identification Code:</b>	FR12
<b>Title:</b>	Challenges
<b>Description:</b>	Landing page form with fields: distance (miles or KM), frequency, duration
<b>Location:</b>	This is located on the Challenges landing page
<b>Priority:</b>	Must have.

<b>Functional Requirement 13</b>	
<b>Identification Code:</b>	FR13
<b>Title:</b>	Notification slider
<b>Description:</b>	Slider to enable notifications for Challenges
<b>Location:</b>	This is located on the Challenges landing page
<b>Priority:</b>	Must have.



<b>Functional Requirement 14</b>	
<b>Identification Code:</b>	FR14
<b>Title:</b>	FAQs
<b>Description:</b>	Accordion displaying FAQs as “Title – dropdown – Description”
<b>Location:</b>	This is located on the FAQs landing page
<b>Priority:</b>	Must have.

<b>Functional Requirement 15</b>	
<b>Identification Code:</b>	FR15
<b>Title:</b>	Profile
<b>Description:</b>	Landing page with editable fields: name, profile picture, subsection – furry friend, fields: dog name, dog breed, dog age.
<b>Location:</b>	This is located on the Profile landing page
<b>Priority:</b>	Must have.

<b>Functional Requirement 16</b>	
<b>Identification Code:</b>	FR16
<b>Title:</b>	Logout
<b>Description:</b>	Logout CTA should be available on each page.
<b>Location:</b>	This is located throughout the app.
<b>Priority:</b>	Should have.

<b>Functional Requirement 17</b>	
<b>Identification Code:</b>	FR17
<b>Title:</b>	Security
<b>Description:</b>	Should have encryption to safely store user data.
<b>Location:</b>	This is located throughout the app.
<b>Priority:</b>	Should have.

<b>Functional Requirement 18</b>	
<b>Identification Code:</b>	FR18

<b>Title:</b>	Validation
<b>Description:</b>	Form of validation for password entries.
<b>Location:</b>	This is located on Login Form
<b>Priority:</b>	Should have.

<b>Functional Requirement 19</b>	
<b>Identification Code:</b>	FR19
<b>Title:</b>	Light/Dark mode
<b>Description:</b>	App could allow users to switch between dark and light display.
<b>Location:</b>	This is located throughout the app.
<b>Priority:</b>	Could have.

<b>Functional Requirement 20</b>	
<b>Identification Code:</b>	FR20
<b>Title:</b>	Register as a Walker
<b>Description:</b>	Ability of professional dog walkers to register themselves without having to create a user profile.
<b>Location:</b>	This is located on the homepage.
<b>Priority:</b>	Could have.

<b>Functional Requirement 21</b>	
<b>Identification Code:</b>	FR21
<b>Title:</b>	Menu Additions
<b>Description:</b>	<p>Could add friend/follow functionality to allow users to connect.</p> <p>Could add ability to organise group walks for users in the same areas.</p>
<b>Location:</b>	This is located on the menu.
<b>Priority:</b>	Could have.

<b>Functional Requirement 22</b>	
<b>Identification Code:</b>	FR22

<b>Title:</b>	Auto-generated routes
<b>Description:</b>	Functionality for routes to be automatically generated for users based on their location.
<b>Location:</b>	This is located on the Challenges page and Homepage
<b>Priority:</b>	Could have.

<b>Functional Requirement 23</b>	
<b>Identification Code:</b>	FR23
<b>Title:</b>	Feedback
<b>Description:</b>	A widget throughout the app that opens into a form for users to leave feedback which is stored in a database.
<b>Location:</b>	This is located on the Pro Walking landing page
<b>Priority:</b>	Could have.

<b>Functional Requirement 24</b>	
<b>Identification Code:</b>	FR24
<b>Title:</b>	Offline Functionality
<b>Description:</b>	The app needs WIFI and will not offer full functionality without it.
<b>Location:</b>	This is located throughout the app.
<b>Priority:</b>	Wont have.

<b>Functional Requirement 25</b>	
<b>Identification Code:</b>	FR25
<b>Title:</b>	Search Bar
<b>Description:</b>	There will be no search bar in the app, the FAQ section will not need a search bar as it will be categorized and easily navigated.
<b>Location:</b>	This is located on the Pro Walking landing page
<b>Priority:</b>	Wont have.

### 3.3 Non-functional Requirements

<b>Non-Functional Requirement 1</b>
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<b>Identification Code:</b>	NFR1
<b>Title:</b>	Logo
<b>Description:</b>	Logo must be clearly displayed throughout the app.
<b>Location:</b>	This is located throughout the app.
<b>Priority:</b>	Should have.

#### **Non-Functional Requirement 2**

<b>Identification Code:</b>	NFR2
<b>Title:</b>	Miscellaneous
<b>Description:</b>	Links to terms and conditions and privacy policy in the footer of the homepage.
<b>Location:</b>	This is located on the homepage.
<b>Priority:</b>	Should have.

#### **Non-Functional Requirement 1**

<b>Identification Code:</b>	NFR1
<b>Title:</b>	Logo
<b>Description:</b>	Logo must be clearly displayed throughout the app.
<b>Location:</b>	This is located throughout the app.
<b>Priority:</b>	Should have.

#### **Non-Functional Requirement 3**

<b>Identification Code:</b>	NFR3
<b>Title:</b>	Recommended Routes
<b>Description:</b>	List of recommended routes in the users area.
<b>Location:</b>	This is located on the homepage.
<b>Priority:</b>	Could have.

#### **Non-Functional Requirement 4**

<b>Identification Code:</b>	NFR4
<b>Title:</b>	Prizes
<b>Description:</b>	Prizes such as discount codes awarded for challenges completed.

<b>Location:</b>	This is located in the Challenge page.
<b>Priority:</b>	Could have.

<b>Non-Functional Requirement 5</b>	
<b>Identification Code:</b>	NFR5
<b>Title:</b>	Leaderboard
<b>Description:</b>	A leaderboard displaying users who have completed most walks/distance that month.
<b>Location:</b>	This is located in Challenges.
<b>Priority:</b>	Could have.

<b>Non-Functional Requirement 6</b>	
<b>Identification Code:</b>	NFR6
<b>Title:</b>	Shop
<b>Description:</b>	There will be no shop or ability to buy products through the app.
<b>Location:</b>	This is located throughout the app.
<b>Priority:</b>	Wont have.

<b>Non-Functional Requirement 7</b>	
<b>Identification Code:</b>	NFR7
<b>Title:</b>	Overnight
<b>Description:</b>	Due to insurance reasons overnight minding will not be facilitated through the app.
<b>Location:</b>	This is located throughout the app.
<b>Priority:</b>	Wont have.

## 2.6 Project Proposal

### 1.0 Objectives

There are various objectives I aim to achieve through the completion of this project, they include;

1. **Expanding my knowledge** of the business analysis process for an IT project – identifying the most effective methods of eliciting requirements and identifying the actions needed to complete those requirements.
2. **Challenge myself** by using technologies and languages I am unfamiliar with – by implementing an API and figuring out how I will add different features will force me to learn and go beyond the languages/tools I am already familiar with.
3. **Put together all of the experience and knowledge** I have gained throughout my college time – combining modules such as fundamentals of Business Analysis, Interdisciplinary Team Project, Introduction to Databases and more to exhibit how much I have learned to this point.
4. **Improve my time management skills** – as this is a yearlong project with massive amount of work to complete, leaving it until the last minute will not be an option and I will have to improve and implement time management skills to ensure deadlines are met and work is done on time and to a high standard.
5. **Achieve a first class honours** – I am currently on track for a first class honours based on my current average grades (1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year) and aim to maintain this and graduate with a 1.1.

## 2.0 Background

I chose this project as it combines two of my passions – wellbeing and dogs. It is an application that I have thought about developing for the last couple of months but did not have the capacity to with my work placement in the ESB and my personal life. The concept for the application is not something I have seen before and so with no clear guidelines I feel I will most **definitely challenge myself and expand my knowledge**. Having a personal interest in the application will keep me engaged and ensure the work I deliver is of high quality which in turn will give me a good shot at **achieving a first class honours** in this project. It is also something unlike any project I have done before and so with different activities I will have no gauge for time and will be required to schedule the project well and delegate my time to various different activities- thus **improving my time management skills**. I will also **display my combined knowledge and skills** – my web design skills and knowledge of HTML, CSS, JavaScript, PHP and MySQL databases will provide a strong foundation for identifying the requirements of the project and clearly defining them. My knowledge of management will allow me to adopt a suitable methodology to define the scope and timeline for the project. Also, my work experience has provided me the necessary knowledge to understand accessibility, quality assurance, the importance of the user interface and the user journey within the application.

## 3.0 State of the Art

I have carried out market research to identify any competitors/similar projects that offer the same service as “Let’s Walk!”, but have not found anything with the same concept. I did however, find some apps that provide similar features – for example [www.routshuffle.com](http://www.routshuffle.com), this is a website that allows the user to enter their location

and a distance and it will provide a randomly generated route on the in-app map. I also found [www.plotaroute.com](http://www.plotaroute.com), this provides the same functionality as RouteShuffle but both are aimed at walkers/joggers, they also lack the premium features I am proposing for “Let’s Walk” e.g., daily reminders to complete a walk with a new route provided daily, reward system for consecutive walks completed. Another similar application is Under Armour’s “MapMyRun” which allows the user to start a run and using GPS their route will be mapped i.e. the route they take will be shown as they complete it – I plan to reverse engineer this process and provide the route on the in-app map and have it disappear as it is progressed. There are also many websites such as [www.wag.com](http://www.wag.com) which allows people to create a profile as a customer or a dog walker, the customer can find local dog walkers and schedule a walk for their dog and complete payment through the app. This is a potential future feature for those who aim to complete consecutive walks but are unable to on a given day/night. Overall I think “Let’s Walk” is an innovative and creative idea that will disrupt the dog/pet app market.

## 4.0 Technical Approach

I will use Scrum, an agile management methodology – during my work placement I was a member of the Digital Team of Electric Ireland and during this time they were working on the development of a new mobile application, they used Scrum and it was a very effective methodology for an IT project. As it is a solo project I will be the scrum master, I will set sprints with a defined activity or activities to be completed within that period of time, this will allow me to have clear objectives and not be overwhelmed by the size of the project as a whole. It is also “agile” so I will be able to maintain high quality of work and test as I progress as opposed to testing at the end of the project. I will use my business analysis knowledge to identify the stakeholders both those who are applicable to every IT project and those that are particular to my project, I will refer to BABOK to help identify them and to decide how I will elicit the project requirements. Currently the elicitation techniques I am considering using are –

- **Document analysis:** researching available documents/materials (customer reviews of competing apps etc.) on the current market and current solutions similar to “Let’s Walk” to identify the gaps in the market and to capitalize on those.
- **Prototyping:** by creating prototypes as I go I will be able to allow family/friends to use the application and provide feedback and potentially identify new requirements.
- **Observation:** after developing prototypes I will observe stakeholders testing it and will both let them provide feedback but will also ask questions to help elicit requirements they may not have thought of.
- **Interview:** I will interview friends/family who are avid dog walkers and try to identify what features would be most important to them and also to gain a general consensus of whether my proposed features would be used or simply overkill.

I will use other techniques as the need for them is identified throughout the project.

As previously mentioned I will break the project down into sprint cycles, this will allow me to set a clear schedule for different activities to be completed, it will also allow me to identify milestones of the project and be able to realise if a milestone is not going to be achieved on time with the current workload or milestones will be achieved earlier than scheduled, this means I will know if I have some slack to focus on an activity more to improve/edit it or if I am running behind schedule I will need to dedicate more time to the project/add more tasks to the sprint cycles.

## 5.0 Technical Details

Project schedule will be set out using a Gantt chart.

User journey mapping will be carried out using Miro to set out the homepage and the various different routes the user can take within the app.

Prototype user interfaces will be developed using draw.io for the general idea and once confirmed – Balsamiq for a more in depth prototype.

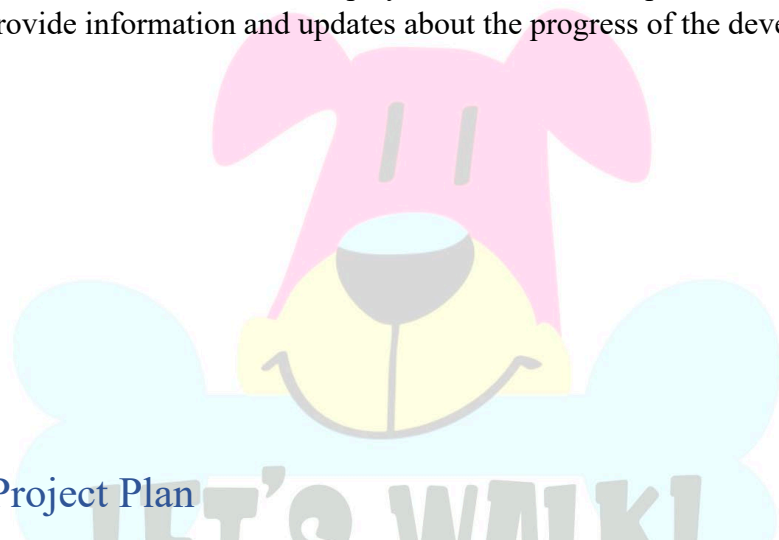
Frontend will be developed using HTML, CSS and JavaScript.

Backend will be developed with PHP for the user account functionality(sign-up), a MySQL database to store user details and walks completed.

The users GPS from their phone will be used alongside an API to generate a random route of the required distance.

A user feedback widget such as Hotjar will be added to the application to allow users to leave feedback to allow me to identify any issues/suggestions.

A WordPress website will be created to display and document the process of completing the project and to provide information and updates about the progress of the development of the application.



## 6.0 Project Plan

November Sprint 1 (1st-15th) Sprint 2 (16th-28th)	December Sprint 1 (1st-15th) Sprint 2 (16th-28th)	January Sprint 1 (1st-15th) Sprint 2 (16th-28th)	February Sprint 1 (1st-15th) Sprint 2 (16th-28th)	March Sprint 1 (1st-15th) Sprint 2 (16th-28th)	April Sprint 1 (1st-15th) Sprint 2 (16th-28th)	May Sprint 1 (1st-15th) Sprint 2 (16th-28th)
Define project scope	Develop user journey maps	Confirm user journey	Develop approved user interface	Create database for user data/routes	Add branding (logo etc.)	Complete final implementation / Submit
Set milestones for project	Develop prototype user interfaces	Develop prototype back-end	Develop prototype front-end	Test database functionality	Carry out test cases to validate requirements	Showcase project
Research similar projects	Engage stakeholders to discuss	Pass/Fail UAT	Pass/Fail UAT	Pass/Fail UAT	Engage stakeholders to discuss requirements	
Identify stakeholders	Complete midpoint presentation	Implement back-end	Implement front-end	Implement database	Tidy up application (QA, Accessibility)	
Perform stakeholder analysis	Continue to engage stakeholders	Continue to engage stakeholders	Continue to engage stakeholders	Develop API to generate routes based on location given	Add documentation to WordPress site	
Carry out interview/s	Add documentation to WordPress site	Add documentation to WordPress site	Add documentation to WordPress site	Test API functionality		
Perform document analysis				Pass/Fail UAT		
Perform userface analysis				Implement GPS plug in		
Analyze results/findings				Test API functionality with GPS		
Gather and clearly define requirements				Pass/Fail UAT		
Add documentation to WordPress site				Sign off front and back end functionality		
				Develop branding - logo/colour scheme		

\*Each month will include 2 sprint cycles:

- Sprint 1 - 1<sup>st</sup> – 15<sup>th</sup>
- Sprint 2 - 16<sup>th</sup> – 28<sup>th</sup>

\* Prerequisites

- Documentation will be added to WordPress website at the end of each Sprint cycle.
- Stakeholders will be engaged at the end of each Sprint cycle.

**November:** I plan to use the month of November to clearly define the scope of the project and its functional requirements – I also want to identify all of the stakeholders and plan how I will elicit the project requirements from them. Once decided I will carry out the requirement



elicitation and gather those before analysing and defining the requirements for the project which will allow me to set a clear roadmap for the project and identify the key milestones.

**December:** This month will be spent developing potential customer journeys with Miro and prototype UIs before completing the midpoint presentation.

**January:** The user journey will be confirmed and the back-end of the application will enter the prototype stages with different features (user account/push notifications) being developed. Once UAT is passed it will be fully implemented.

**February:** The user interface and front end will be developed once UAT has been passed, the stakeholders will be engaged throughout these processes to validate the requirements are being achieved.

**March:** March will see the “big push” of the project with a strong foundation having been set. The core concepts of the application will be implemented in this phase, the GPS plug in will be added to allow users to view their location on the in-app map using the location services on their phone – the API will be implemented to generate random routes based on the users GPS location and desired distance. The push notifications for the application will also be developed as well as the database to store the users data. The projects functionality will be signed off at this stage.

**April:** This stage will see the addition of branding i.e., logo and name added to various touchpoints of the application. The stakeholders will carry out the test cases I will provide to validate and verify the requirements of the project.

**May:** This month will see the submission and presentation of the completed project.

LET'S WALK!

## 7.0 Validation/Verification

The first step is to clearly define the requirements and give as much detail as possible to avoid anything being forgotten or left out. For functional requirements I will clearly describe “how” the requirement will be achieved. I will draft up test cases for the various requirements to ensure they are performing as desired. I will also continuously engage stakeholders throughout the project and discuss the user requirements in order to validate their progress and end goal. I will have stakeholders who have provided requirements complete user acceptance testing and pass or fail the requirement.

In summary:

- Clearly define requirements
- Include sufficient detail
- Carry out test cases
- Engage stakeholders throughout
- Stakeholders pass or fail UAT of their requirements

## 2.7 Monthly Reflective Journals

October

In the month of October I made progress on my capstone project on three fronts, deciding what it would be, meeting my supervisor and completing my project proposal.

Achieved:

Over the summer I had wrestled with a number of different ideas and tried to think of something that was related to my work placement i.e., analyzing customer feedback but found this to be such a saturated industry that it was hard to be innovative and think of something new. As the weather was good I was walking my dog, Luna, on a regular basis and on one of these walks thought of an idea – a route generating app for dog owners to keep their walks new and exciting and add a bit of novelty to a sometimes mundane task, from that foundation I thought of things like extra functions, who it would be for, what it would look like etc.

After deciding on the idea I worked away at my project proposal completing all of the necessary sections, thereafter I submitted it and waited for feedback and approval to carry on with the idea. The idea was approved and I was assigned my supervisor – Noel Cosgrave, Noel and I met and discussed the idea and what it should and shouldn't be, as well as where I might be able to increase the innovativeness and therefore increase my final grade.

Next Step:

From there I wanted to decide who the stakeholders would be and what elicitation techniques I would use going forward.

Reflection:

In retrospect I should have the idea in place and decided upon before the semester started so that I could hit the ground running and spend the time I had on more valuable things like deciding on elicitation techniques, stakeholders etc.

November

Achievement:

In November I set out my elicitation techniques based on speaking with past colleagues from my work placement and based on my own academic experience. They were – a survey, a brainstorming session, interviews, prototyping and a requirements workshop. They would be carried out with the project stakeholders who I would decide on, they included – A software developer, a professional dog walker, a veterinarian and two potential end users. I felt as though these people would be the best possible stakeholders for giving me a rounded view of what the app should be and how we could achieve that and the techniques listed would be the most effective ways of getting these opinions and information out of the stakeholders. I suppose you could say I carried out preliminary requirements elicitation through arranging these people.

From there I created a long list of potential requirements of the app and put them into a MoSCoW analysis of Must Haves, Should Haves, Could Haves and Wont Haves, this was just an initial MoSCoW and will be changed throughout the project but it gave me a list to discuss with each stakeholder.

Next step:

Next I want to get going on the actual elicitation and gathering of requirements and opinions of the stakeholders.

Reflection:

I wish I had spent more time this month actually making physical progress towards the project, it became clear to me just how much work was involved more so in the actual organizing of meetings etc. than documenting and I got a little bit anxious about completing the project on time due to work etc.

December

Achievement:

The first thing I done in December was to create my survey, I made it using Google Forms and I posted it on social media and spread it amongst my classmates.

For the next 2 weeks I carried out the interviews of the stakeholders in various locations both in person and online. This was great for the project as I got in depth responses and honest opinions to questions I had made for each one – it was much more personal than an email and allowed for better elicitation, it was natural and flowed and I think one interview is worth 10 emails. I documented my questions and answers for each one to later analyse.

The next week I held a Teams call with all stakeholders and we had a brainstorming session for 45 minutes, this allowed everyone to bounce ideas off each other and to think of things we could not have individually thought of.

Next step:

Next I will carry out in depth analysis of all results and from there develop some wireframes for my prototype.

Reflection:

If I could redo it all I would hold all interviews in person ideally as I think face-to-face was much more productive than a Teams call, also I would maybe have looked for a different technique than the brainstorming session. I felt a little awkward trying to control a group of people older and more senior than me and at times felt as though the session had been inconvenient for them and they didn't fully want to participate.

January

#### Achievement:

This month I carried out analysis of my results – I extracted insights from the results and translated these into requirements, to verify that what I understood was exactly what the stakeholders meant I called them after and emailed a copy of my documentation to verify we were on the same page. From this analysis I was able to identify what the initial version of the app would look like and I used Visme to develop a set of wireframes that would be used in the requirements workshop and focus group.

#### Next step:

Next I will carry out the requirements workshop and focus group to discuss the app and the wireframes to identify any changes that need to be made and get some feedback on my progress.

#### Reflection:

This month felt good and very productive – as I didn't have to spend as much time communicating with stakeholders I could spend more time carrying out activities that would add to the final product e.g., analysing the results and creating the wireframes.

### February

#### Achievement:

In February I held my requirements workshop, I showed my first set of wireframes and got some positive and negative feedback and a list of proposed changes that could be made to improve the look and navigation of the app, I then made these changes using draw.io and Visme again. I also had my Focus Group which wasn't as productive as I had planned, I did however get some ideas from it that I hadn't thought of prior so it was beneficial in that sense.

#### Next step:

My next goals are to finalize the digital wireframes and to complete the documentation of the IEE requirements. Alongside the wireframes I'm going to do a document analysis of reviews of one of Let's Walk! competitors to ensure we are including all functionality that is needed to make it a success and avoid making any mistakes made by our competitors.

#### Reflection:

Reflecting on the last month I have one thing that I would change and that is carrying out my focus group with participants of the same age group, this caused an awkwardness and stopped them from being comfortable stating unique opinions, it resulted in a lot of people agreeing with whatever the first answer given was.

### March

#### Achievement:

This month I finalised the digital wireframes, this didn't involve much work as it was only minor changes, as well as this I completed the IEE requirement documentation. I am now coming towards the end of the project and alongside the work in it I have submitted my final assignments for other modules.

Next step:

From here I will verify all requirements with the various stakeholders and make final changes to the documentation.

Reflection:

Looking back on this month I am happy with the fact that I set myself the goal of having the majority of the workload finished before March as I knew I would have a lot on my plate in regards to other modules and this allowed me to allocate more time to getting all assignments completed.

April

Achievement:

April was spent contacting stakeholders who had been involved in the project and given feedback – I showed them the final wireframes and went through the documentation of the requirements I had outlined after our first interactions, I got the green light from them and made the final changes to the content of the report and began finalising the layout i.e., logo, page numbers etc. I also began the WordPress website that is an online version of the report only with less detail and more of a blog.

Next step:

Next I will create the PowerPoint slides and record my final presentation, as well as this I will create the poster to go alongside my report for the project showcase in May.

Reflection:

If I could redo this month I would spend more time on my WordPress website so that I could allocate more time searching for a job to start once college had finished.

May

Achievement:

This month I completed my documentation as well as the poster and WordPress website – this felt a huge accomplishment as not only was it my final assignment it marked the end of my time at NCI, it was a relief to get the work finished and submitted

Next step:

Next I will begin the job search and await my overall results in June.

Reflection:

Looking back on the last number of months if I could do it again I would reduce the number of elicitation techniques and try to improve the quality of them, more isn't always better and I feel that having so many techniques hindered me in getting detailed responses with in depth reasoning. I would also probably spending more time on the idea as I didn't realise how big of a factor this would be in developing requirements.

