

# Supporting Sporting Parents

## Mobile Application

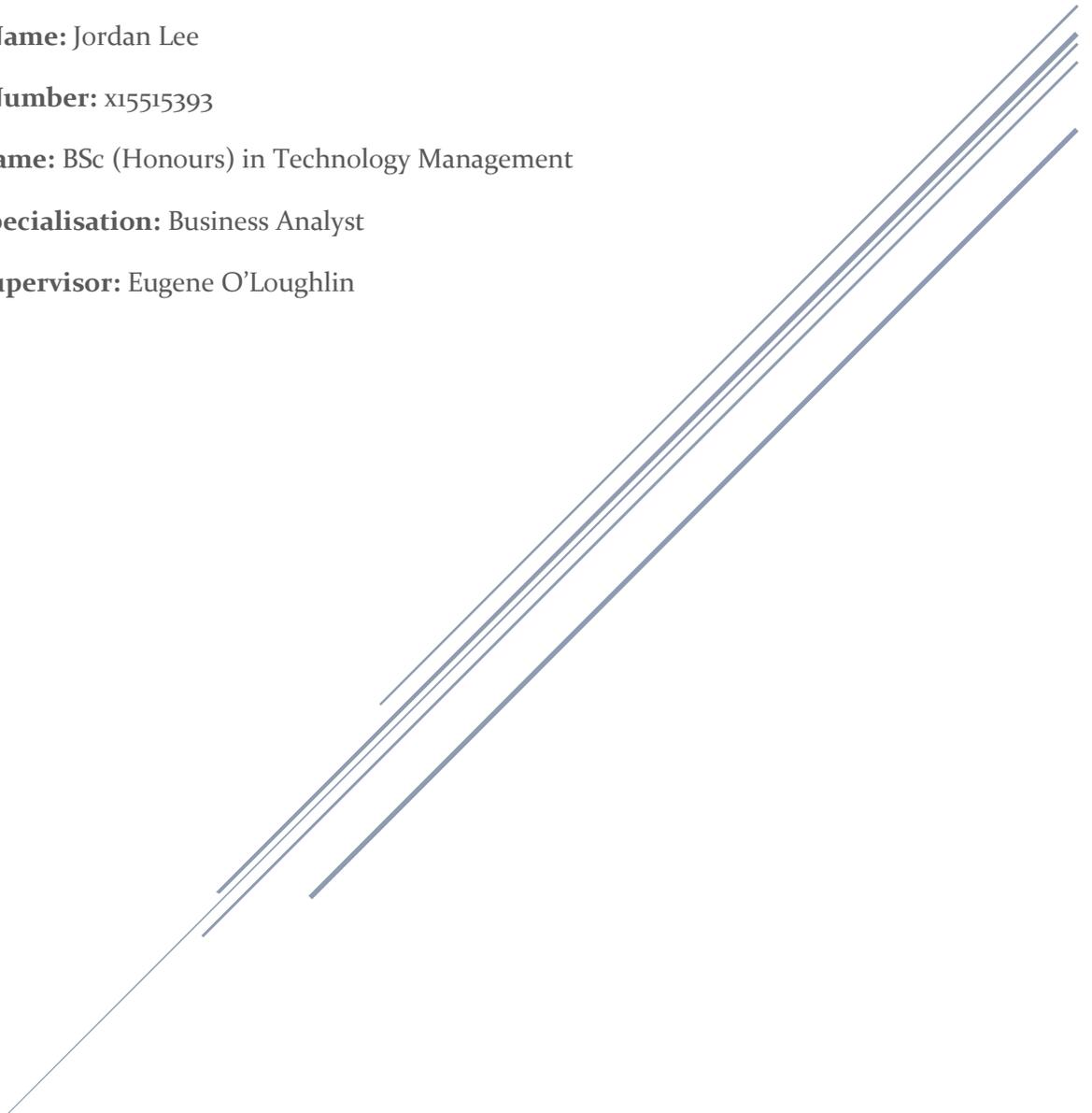
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**Student Number:** x15515393

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

**Course Specialisation:** Business Analyst

**Project Supervisor:** Eugene O'Loughlin



## Declaration Cover Sheet for Project Submission

### SECTION 1 *Student to complete*

<b>Name:</b> Jordan Lee
<b>Student ID:</b> X15515393
<b>Supervisor:</b> Eugene O'Loughlin

### SECTION 2 **Confirmation of Authorship**

*The acceptance of your work is subject to your signature on the following declaration:*

I confirm that I have read the College statement on plagiarism (summarised overleaf and printed in full in the Student Handbook) and that the work I have submitted for assessment is entirely my own work.

Signature: 

Date: 06/05/2019

NB. If it is suspected that your assignment contains the work of others falsely represented as your own, it will be referred to the College's Disciplinary Committee. Should the Committee be satisfied that plagiarism has occurred this is likely to lead to your failing the module and possibly to your being suspended or expelled from college.

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Paraphrasing refers to taking the ideas, words or work of another, putting it into your own words and crediting the source. This is acceptable academic practice provided you ensure that credit is given to the author. Plagiarism refers to copying the ideas and work of another and misrepresenting it as your own. This is completely unacceptable and is prohibited in all academic institutions. It is a serious offence and may result in a fail grade and/or disciplinary action. All sources that you use in your writing must be acknowledged and included in the reference or bibliography section. If a particular piece of writing proves difficult to paraphrase, or you want to include it in its original form, it must be enclosed in quotation marks and credit given to the author.

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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If it is suspected that your assignment contains the work of others falsely represented as your own, it will be referred to the college's Disciplinary Committee. Where the Disciplinary Committee makes a finding that there has been plagiarism, the Disciplinary Committee may recommend

- that a student's marks shall be reduced
- that the student be deemed not to have passed the assignment
- that other forms of assessment undertaken in that academic year by the same student be declared void
- that other examinations sat by the same student at the same sitting be declared void

Further penalties are also possible including

- suspending a student college for a specified time,

- expelling a student from college,
- prohibiting a student from sitting any examination or assessment.,
- the imposition of a fine and
- 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 and Analysis Planning

### 1.1 Introduction

Supporting Sporting Parents is a mobile application platform to accommodate for the busy sporting parent. The application will allow the parent to locate a variety of local sports teams and clubs for their child or children near to their residence and they will be able to sign their child up to their desired team through the mobile application. A host of other features and functions will be incorporated into the application to assist parents in the management of their children’s sporting

activities. The application will provide access to local club's managers or selected representative from that club as a user to update information on behalf of their club.

A number of various elicitation techniques will be carried out to gather requirements for the application, BABOK will be used as the support foundation for the project to ensure the elicitation techniques are carried out to their maximum potential. A brainstorming session will be conducted at the early stage of the project to generate a host of ideas for the application in a creative environment and a survey will be distributed to a wide audience to collect a large amount of data in a relatively short period of time. Interviews will be conducted as a more targeted elicitation technique to gather input from stakeholders in a personal setting, they will have the opportunity to give their honest opinions and views to the questions asked in relation to the application. Document analysis will be conducted to study information that will provide a background for the business area, it will be utilised to identify new requirements and validate other requirements gathered from the prior requirements elicitation techniques performed.

A prototype will be developed based on the requirements gathered from these elicitation techniques, it will be carried out in combination with a focus group to display an early representation of the potential end product, the stakeholders from the focus group will communicate their thoughts and opinions of the prototype which will be acknowledged and undertaken to make an improved follow-up prototype.

When all requirements elicitation techniques have terminated a final requirements collective will be gathered, they will be prioritised using the MoSCoW analysis technique. The requirements will then be actioned to produce a high quality IEEE requirements specification document.

## 1.2 Business Need

There is a need for the application due to technological advancement in the digital era of today's world, there is a gap in the market for an application like Supporting Sporting Parents. The application would enable sports clubs to engage digitally to a wider audience and at the same time bring ease and accessibility to time limited parent. Local clubs need funding to survive and this application can potentially boost participation figures which will strengthen finances ensuring stability for the sport clubs to provide a great service to their community for the foreseeable future.

Although technology can bring benefits like this application, there are negatives that it carries too. With readily access to game consoles, tablets and mobile phones children are replacing physical activity and exercise for screen time on these technological devices. A campaign START was initiated recently requesting parents “*to reduce the amount of screen time their children are having and to become more active*”. (Jack Quann, 2018) My application can aid this campaign by helping parents locating sports teams and clubs for their children to join, getting children physically active again.

A recent survey of one thousand parents with children in the age bracket of 6 to 13 was carried out and supports the need for an application like Supporting Sporting Parents. 31% of parents say they are too busy to take their children to training session and matches, my application can work to help solve this problem by creating more free time for parents and arrangements for carpooling. A significant portion of the parents feel “*excessive interest in technology is responsible for their children’s lack of sportiness*” (Pope, 2019) and three quarters would like to increase their children’s exercise. There is a lack of knowledge amongst parents in regard to health information, nearly two thirds did not know the advised amount of exercise time children should get daily. The Department of Health and Children guidelines suggest children should partake in a minimum of one hour of moderate to vigorous intensity exercise daily. Findings from a study carried out by University College Dublin state that only “*19% of primary school and 12% of post-primary school children met the minimum physical activity recommendations.*” (B.Woods et al., 2013) If this application can work towards getting children meeting these recommended guidelines and being more active it will bring a range of benefits controlling bodyweight, lowering the risk of premature cardiovascular disease and type 2 diabetes. Additionally exercise decreases depression and anxiety, improves mood, self-confidence and standard of life. The mission of this application is to a healthy future for the younger generation.

### 1.3 Business Case

**Problem Statement** – The figures of youth participating in sport and exercise need to be increased to ensure a healthier life for themselves, access to sports club’s need to be made as readily available as possible to the busy parent to increase the chances of them signing-up their child for a sport.

**Solution** - The Supporting Sporting Parents application forms the solution to the problem, it will make it easier for the time struck parent to manage their children’s

sporting activities and potentially increase the number playing sport. The application allows for greater promotion of local sports teams to gain exposure in their communities.

### ***Risk Assessment –***

With any project undertaken it is inevitable to have risks, it is easier to solve any risks that formulate into issues as early as possible. A number of risks this project and application may face are as follows:

- The requirements gathering process may present some risks with scheduling issues in relation to stakeholders and elicitation techniques e.g. interview arrangements. The project plan will be followed and managed continuously to minimise this risk.
- Requirements creep could occur after the project begins with stakeholders wanting to change or include additional requirements. All requirement changes from stakeholders will be considered even at the late stages of the project in order to be agile. Requirements will be managed closely from the beginning with clarification provided to stakeholders and the opportunity for them to validate requirements.

### ***Application Risks***

#### ***Risks to Project:***

- Risk of selecting a poor developer to create the application
- Risk of the target audience being reluctant to change
- Risk of security breaches cyber-attacks etc.

#### ***Risk to User (Parent)***

- Risk of not being able to operate the application
- Risk of personal data breach

#### ***Risk to User (Sports Club Representative)***

- Risk of not being able to operate the application
- Risk of sensitive club information been accessed

#### 1.4 Stakeholder List

“The purpose of Plan Stakeholder Engagement is to plan an approach for establishing and maintaining effective working relationships with the stakeholders.” (IIBA, 2015)  
Analysis was conducted to identify the involved stakeholders of the project.

##### **Stakeholders identified:**

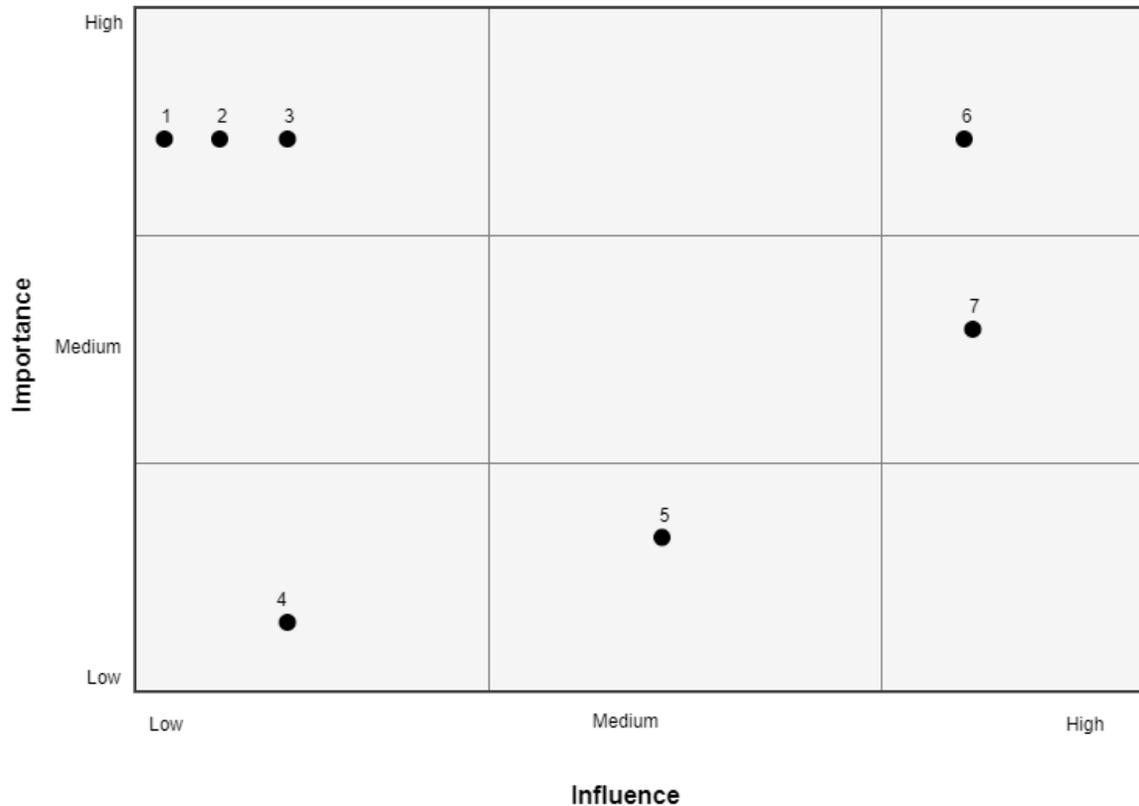
1. Sports Clubs
2. Parents
3. Sports Managers
4. Department of Transport, Tourism and Sport
5. College Supervisor
6. Business Analyst
7. Application Developer

After stakeholders were clearly identified a RACI Matrix was produced to designate the level of responsibility expected from each stakeholder.

Stakeholders	Responsible	Accountable	Consulted	Informed
Sports Clubs			x	x
Parents			x	x
Sports Managers			x	x
Department of Transport, Tourism and Sport				x
College Supervisor			x	x
Business Analyst	x	x	x	x
Application Developer		x	x	

### 1.5 Importance/Influence Matrix

An Importance and Influence Matrix was composed to map the degree of stakeholder influence against the level of interest of the stakeholder.



**Sports Clubs (High, Low)** – Local sports clubs will have a high importance as they provide requirements and are potential customers of the application. They will be consulted and kept informed throughout the project. They have low influence in terms of developing the actual application.

**Parents (High, Low)** – Parents will have a high importance as they provide requirements and are potential users of the application. They will be kept informed throughout the project and consulted for requirements gathering. They have low influence in terms of developing the actual application.

**Sports Managers (High, Low)** – Sports Managers will have a high importance as they provide requirements and are potential users of the application. They will be kept informed throughout the project and consulted for requirements gathering. They have low influence in terms of developing the actual application.

**Department of Transport, Tourism and Sport (Low, Low)** -The Department of Transport, Tourism and Sport will have little importance or influence over the project. They will be informed through general communications and will not be consulted.

**College Supervisor (Low, Medium)** – The college supervisor will have low impact and medium influence as they will provide guidance and mentorship throughout the project duration.

**Business Analyst (High, High)** – The business analyst is high importance and high influence as their actions are accountable for the success of the project. They are responsible for eliciting the requirements and ensuring they are translated into a working product correctly.

**Application Developer (Medium, High)** – This stakeholder will have medium importance and high influence. They will be consulted to develop the requirements document into a functioning application and will be accountable for this piece of work.

## 2 Requirements Elicitation Techniques

### 2.1 Brainstorming Session

#### *Overview and Objective*

“Brainstorming is an excellent way to foster creative thinking about a problem” (IIBA, 2015), the goal of the brainstorming session is to generate multiple innovative ideas in an open non-judgemental environment with a selection of stakeholders in relation to what features and functions the application should incorporate. This elicitation technique is engaging and using a group for the session will draw on the creativeness and experience of all participants. Suggestions and ideas for functions and features will be documented with a pen and paper for the purpose of this session.

#### *Participants*

3 Parents

4 Technical Students

#### *Date of Meeting*

29th of November 2018

### ***Time of Meeting***

09:00 – 10:00

### ***Brainstorming Session Rules and guidelines***

1. Participants should arrive to the session at least ten minutes before scheduled start time
2. Participants must turn off mobile phones or switch to silent mode before the session begins
3. One individual speaker at a time
4. No judgement of other participants ideas
5. All ideas are welcomed, the goal is to elicit as many ideas as possible
6. Build on other people's ideas by giving full attention to the session
7. There will be opportunity for questions at the end to add further detail to selected ideas

## **2.2 Survey**

### ***Overview and Objective***

The aim of the survey is to establish the level of want for preliminary gathered features for the application, collect customer information and elicit potential new features for the application. The questions will be formed in alignment with the survey objective. The survey will strive to gather a large amount of data in a relatively short time-period from a targeted one hundred participants to ensure a sufficient sample size. The survey will present a set of questions to the targeted stakeholders and their responses will be collected and analysed to identify new requirements and validate pre-existing requirements from the brainstorming session.

### ***Survey Preparation***

The survey will be formed using Google Forms after consideration of possible options, it is the most cost-effective option and it is fit for purpose. The proposed survey questions will be reviewed with my project supervisor to discover if they are of sufficient standard and meet the colleges ethics policy. A sample group of a small number of participants will complete the survey to check for errors and ambiguities before it is distributed on a wider scale to a larger audience. A time estimation of completion will be gathered from this sample to inform other participants in the

survey brief with an expected estimation of completion, the survey brief will similarly include the application overview and survey purpose.

***Distribution Method:***

- Emailed to relevant stakeholders
- Survey shared via social media platforms

***Date Released:*** 20<sup>th</sup> of February

***Date Closed:*** 13<sup>th</sup> of March

***Proposed Survey Questions***

**1. What is your gender?**

- Female
- Male
- Prefer not to say
- Other

**2. What number of children do you have?**

- 1
- 2
- 3
- 4+
- N/A

**3. How often do you use the following social media platforms?**

	Never	Rarely	Sometimes	Frequently	Always
Facebook					
Instagram					
Twitter					
WhatsApp					

**4. Which of the following age brackets is your child/children in?**

- 1 to 5 years old
- 6 to 11 years old
- 12-15 years old
- 16-18 years old
- N/A

**5. Which of the following sport does your child/children participate in?**

- Soccer
- Gaelic football
- Hurling
- Rugby
- Athletics
- Boxing

**6. Sports has helped your child/children gain friends?**

- Strongly agree
- Agree
- Maybe
- Disagree
- Strongly disagree

**7. How many hours a day does your child/children exercise?**

- None
- Less than 1 hour
- 1-2 hours
- 2+ hours

**8. Your child/children's activity is affected by technology?**

- Strongly agree
- Agree
- Maybe
- Disagree
- Strongly disagree

**9. How likely are you to use an application for locating local sports teams for your child/children?**

- Very Likely
- Likely
- Maybe
- Unlikely
- Very Unlikely

**10. Sign-ups for sports teams via mobile or website application is a promising idea?**

- Strongly agree
- Agree
- Maybe
- Disagree
- Strongly disagree

**11. Communication with other parents in relation to your child/children's sport is frequent?**

- Strongly agree
- Agree
- Maybe
- Disagree
- Strongly disagree

**12. Protected disclosure for any issues with parenting at matches/training is useful?**

- Strongly agree
- Agree
- Maybe
- Disagree
- Strongly disagree

**13. How likely would you be in volunteering with your local sports club/team?**

- Very Likely
- Likely
- Maybe
- Unlikely

- Very Unlikely

**14. How likely are you to look for information for sporting camps during summer and school holidays etc.?**

- Very Likely
- Likely
- Maybe
- Unlikely
- Very Unlikely

**15. A reward system on an application for you to update on behalf of your child children would motivate them to exercise more (for example stars/points for matches played)?**

- Strongly agree
- Agree
- Maybe
- Disagree
- Strongly disagree

**16. Information on sporting costs for your child/children would be useful to you?**

- Strongly agree
- Agree
- Maybe
- Disagree
- Strongly disagree

**17. How likely are you to purchase club gear and merchandise for your child/children?**

- Very Likely
- Likely
- Maybe
- Unlikely
- Very Unlikely

**18. More information on nutrition for your child/children would be helpful to you?**

- Strongly agree
- Agree
- Maybe
- Disagree
- Strongly disagree

## 2.3 Interviews

### *Overview and Objective*

*“An interview is a systematic approach designed to elicit business analysis information by talking to the interviewee(s) asking relevant questions and documenting responses.”* (IIBA, 2015) The aim of the three interviews that will be conducted is to gather requirements from the relevant interviewee in relation to features and functions for the application. The interviews will be structured with a predetermined set of questions and the answers received will be documented for further analysis. An interview brief will be sent to each interviewee before the actual interview to give them an understanding of the interview topic and clarity about the goal of the interview. The brief will include an overview of the application, the objective of the interview and potential requirements.

### *Interview One*

***Participant of interview:*** Soccer Manger

***Interview Location:*** Ayrfield Community Sports and Leisure Centre

***Date of Interview:*** 9<sup>th</sup> of February 2019

***Time of Interview:*** 10:00 – 11:00

### *Interview Objective*

The objective of the interview is to improve my understanding of the requirements for the application from the point of view of a soccer manager. The interview with the soccer manager will allow to form a deeper understanding of what their expectations are as a potential customer and they will be questioned in relation to the features and functions of the application. The interview will be used to gather requirements and validate some requirements from the survey and brainstorming session which allows for prioritisation.

### *Interview Questions*

**Q1.** Do you feel technology has an influence on children participating in sport?  
(How, Why)

**Q2.** Do you think my application would have an impact on participation figures?  
Why?

**Q3.** Has your club changed any of its processes because of technology? If so, give  
example.

**Q4.** What features would you like to see in the application?

**Q5.** Do you see any problems with the application idea?

**Q6.** How often do parents contribute to volunteering with the team/club?

**Q7.** What do you think parent level of knowledge on sports health and nutrition is?

**Q8.** How much time is spent dealing with the sign-ups of players?

**Q9.** How much exposure do you feel your club/team has in the local community?

**Q10.** Is there any additional information you would like to add?

### ***Interview Two***

***Participant of interview:*** Games Promotion Officer with Dublin County Board

***Interview Location:*** Starbucks, Dublin 1

***Date of Interview:*** 11<sup>th</sup> of February

***Time of Interview:*** 17:00 – 18:00

### ***Interview Objective***

The objective of the interview is to gather features and ideas for the application, along with gaining an insight into the area of Gaelic games in the country and how it operates at youth level, from an individual heavily involved with the sport.

### **Interview Questions**

**Q1.** Do you feel technology has an influence on children participating in sport? How,  
Why

**Q2.** Do you think my app idea would have an impact on participation figures? Why?

**Q3.** Are many of the children you coach in schools involved in team outside of school?

**Q4.** What features would you like to see in the application? (e.g. Chat forum for parents)

**Q5.** Do you see any problems with the application idea?

**Q6.** How often do parents contribute to volunteering with the team/club?

**Q7.** What do you think parent level of knowledge on sports health and nutrition is?

**Q8.** How much time is spent dealing with the sign-ups of players?

**Q9.** How much exposure do you feel your club/team has in the local community?

**Q10.** Is there any additional information you would like to add?

### ***Interview Three***

***Participant of interview:*** Parent

***Interview Location:*** Costa Coffee Coolock, Dublin 17

***Date of Interview:*** 4th of March 2019

***Time of Interview:*** 12:00 – 13:00

### ***Interview Objective***

The objective of the interview is to gather the requirements for the application from a parent's point of view who will be predominately the main user of the application. The current issues they face with their children involved with sport and how the application can help to try and tackle these problems.

### **Interview Questions**

**Q1.** What are your opening views on the application?

**Q2.** From your previous experience do you feel finding and signing-up your children for sports team's a time consuming task?

**Q3.** What social media platforms would you advise to be included in the application based on your personal usage?

Q4. What features would you recommend for this application that would make management of your children’s sporting activities easier for you as a parent?

Q5. In what way would you like to get notifications about matches and training times etc.?

Q6. Would you be more inclined to use a website or mobile application if developed?

Q7. Through what method do you currently communicate with team managers and other parents?

Q8. Is there any additional information you would like to add?

## 2.4 Document Analysis

### *Overview and Objective*

A number of available materials for instance articles, journals and books will be analysed to gather requirements and provide a contextual understanding. Document analysis will be utilised to gather background information in order to comprehend business requirements and will involve *“researching existing solutions to validate how those solutions are currently implemented.”* (BABOK) It will be used for validation purposes of findings from other elicitation techniques interviews, survey and the brainstorming session.

## 2.5 Prototyping

### *Overview and Objective*

A prototype will be developed to gather requirements, it will allow for the evaluation of design options of the end product and contribute to maximising the experience for the user. Demonstrating an early model of the potential end product will *“identify both missing or improperly specified requirements”*. (IIBA, 2015) The prototype will be composed of requirements gathered from the earlier elicitation techniques brainstorming session, survey and interviews. The prototype will be constructed using Balsamiq mock-ups to give an initial view of the Supporting Sporting Parents application to stakeholders.

The prototype will be used in combination with a focus group to acquire some constructive criticism and feedback from the early product design. Suggestions made in the focus group will be noted and made actionable to develop an enhanced version of the first prototype.

## 2.6 Focus Group

### *Overview and Objective*

A focus group will be conducted with a group of stakeholders to entice their views about the application prototype which will be the specified product of the focus group. The stakeholders will have the opportunity to discuss in an interactive group setting their opinions of the under construction end product, the feedback from the participants will be utilised to update current needs and find new requirements.

***Focus Group Location:*** National College of Ireland

***Date of Focus Group:*** 21st of March 2019

***Time of Focus Group:*** 09:00 – 1:00

The plan for the focus group is as follows:

- ***Purpose*** – to discuss the opinions and views of participants in regard to prototype one, to gather requirements that will allow for alterations to make an improved follow-up prototype.
- ***Location*** – The focus group will be conducted in an available room in the National College of Ireland
- ***Logistics*** – The room will require a whiteboard and marker to document input from the stakeholders, it will need a computer and projector screen to showcase prototype one to the stakeholders. The room will have the necessary number of tables and chairs to accommodate participants, pens and paper will be provided.
- ***Participants*** – A business analyst will act as the moderator conducting the session to engage the audience and ensure the session stays on topic and on time. The participants will include stakeholders that will be potential users of the application. Computing students will attend the focus group also as they have a suitable experience with prototypes to give beneficial criticism.
- ***Timelines*** – The focus group will be approximately thirty minutes in duration to allow adequate time to discuss recommendations in addition to reviewing and confirming those recommendations.
- ***Outcomes*** – The suggestions for improvement and requirements collected from the focus group will be documented and analysed in order for them to be incorporated into an improved follow-up prototype.

## 2.7 Interface Analysis

### *Overview and Objective*

The purpose of this elicitation technique is “to identify where, what, why, when, how, and for whom information is exchanged between solution components or across solution boundaries.” (IIBA, 2015) The use case diagram will be created after the focus group, the diagram will provide a representation of how the different users will interact with the system and Supporting Sporting Parents Application. For the diagram to be a success the below steps must be found.

#### ***Use Case Diagram Users:***

Who will use the interface?

#### ***What information:***

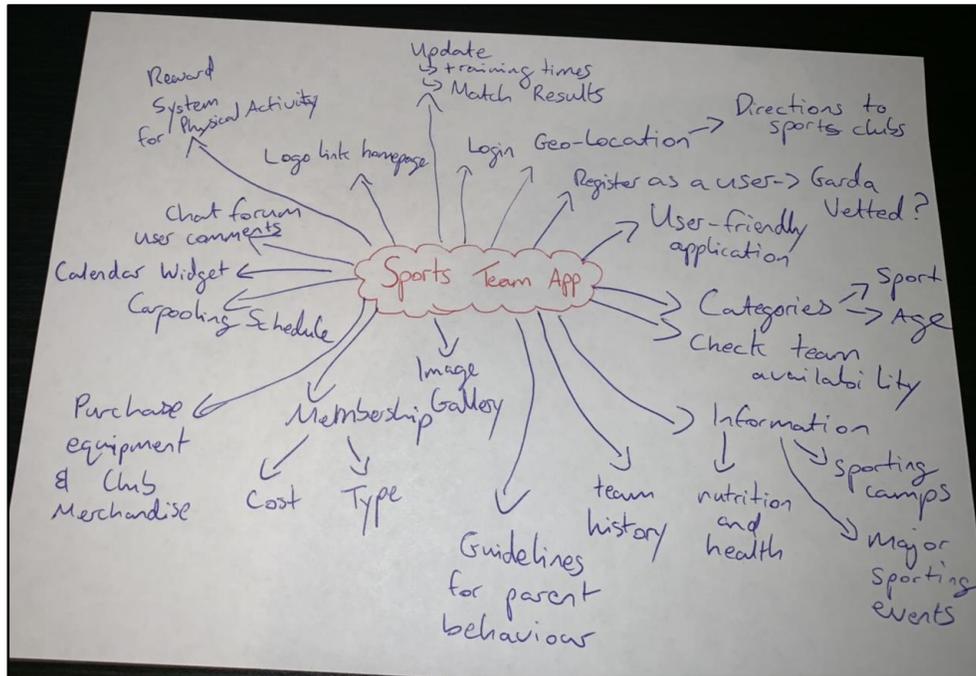
Through the interface what information will be exchanged, when will it be exchanged and how frequently

## 3. Requirements Elicitation and Analysis Results

### 3.1 Brainstorming Session

The brainstorming session that was conducted was a great success, the participants were fully cooperative arriving on time and abiding by the agenda for the session which was clearly defined at the beginning. The members openly put forward numerous ideas for potential functionality and features for the application and built on one another’s inputs with a respectful and non-judgemental environment throughout the session. All ideas were taken without hesitation or criticism and documented with a pen and paper for the purposes of the session which provided clear visibility of the members inputs. A brief evaluation was carried out with the participants after the time limit surpassed to discuss and clarify the ideas that they provided. Certain ideas given were combined where appropriate to remove duplicates.

## Brainstorm Document Result



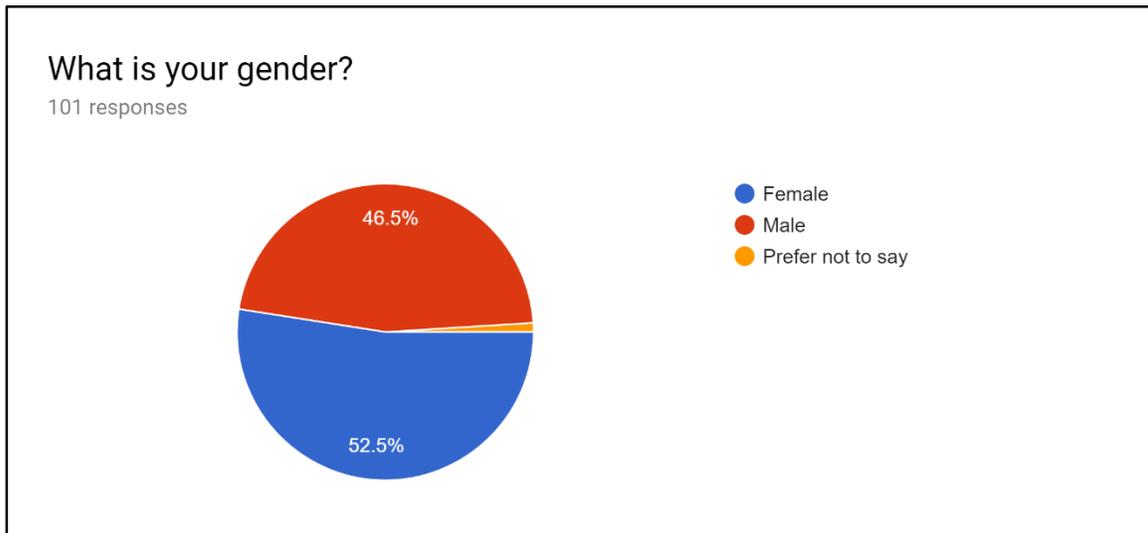
## Brainstorming Session Requirements Gathered

- Logo link to homepage
- Registration of user details
- Login for registered users
- Geo-location to locate sports clubs
- Directions to sports clubs
- Comment on a chat forum to communicate with other users
- Update match results
- Update training times
- The user should be Garda vetted
- Plan carpooling schedules
- A reward system for physical activity
- Provide information on the cost of membership
- Provide information on the types of membership
- Ability to purchase equipment and club merchandise
- Provide information on sporting camps (Summer, Easter)
- Provide guidelines for parent behaviour at sporting activities

- Provide information on nutrition and health
- Provide information on major sporting events
- Ability to check team availability
- Provide information on team history
- Ability to select a category for sports (football, GAA etc.)
- Ability to select a category for age
- Provide a user-friendly application
- Display an image gallery of sporting events
- Provide a calendar widget to allow the user to schedule

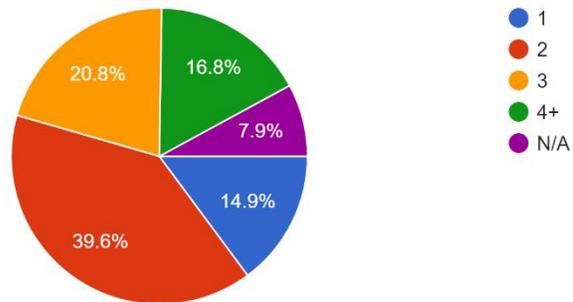
### 3.2 Survey

#### *Results and Report*

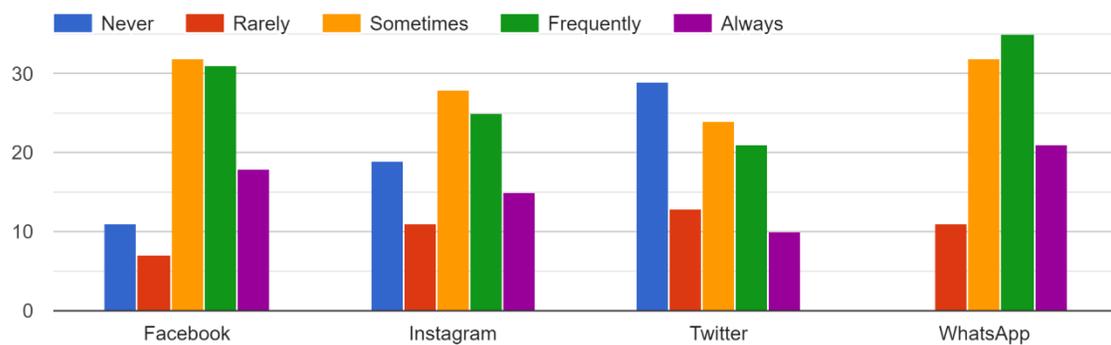


## What number of children do you have?

101 responses

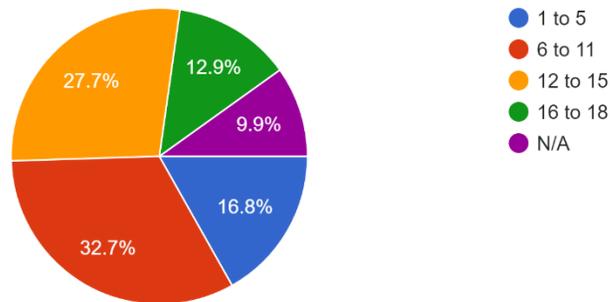


## How often do you use the following social media platforms?



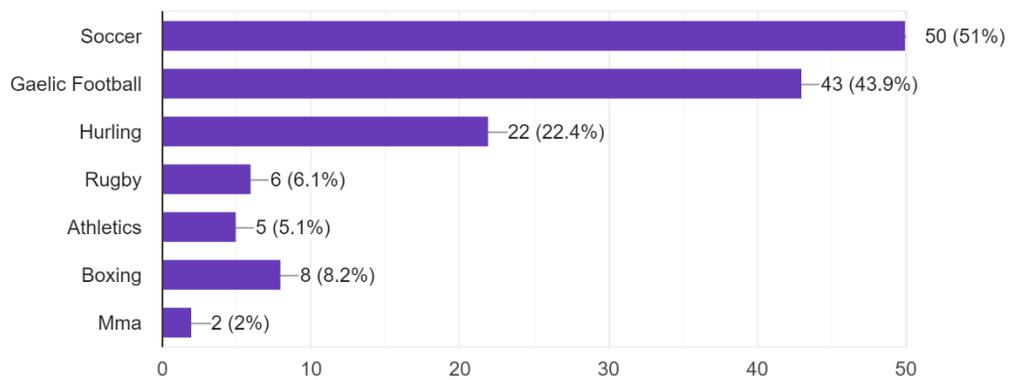
### Which of the following age brackets is your child/children in?

101 responses



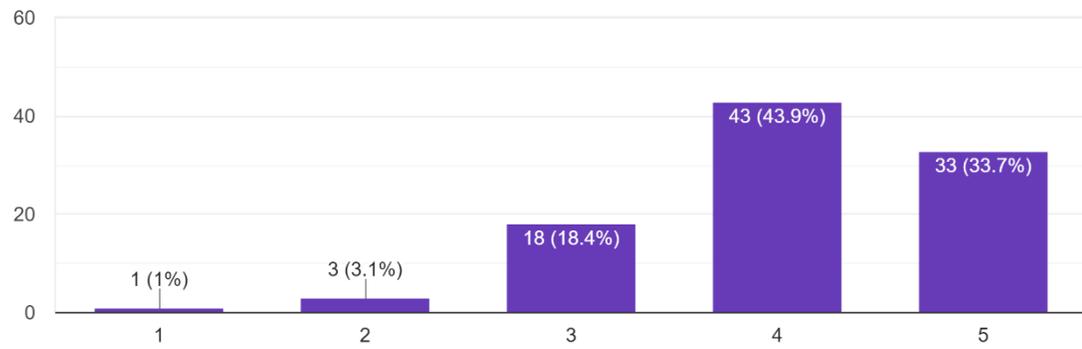
### Which of the following does your child/children participate in?

98 responses



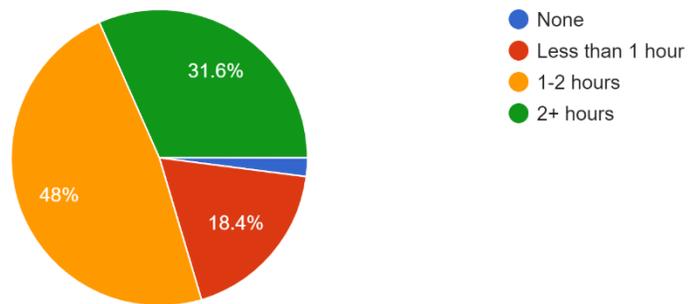
### Sports has helped your child/children gain friends?

98 responses



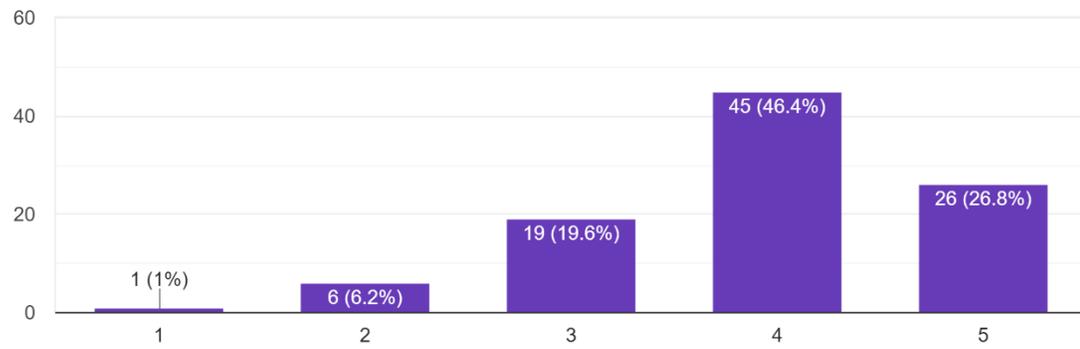
### How many hours a day does your child/children exercise?

98 responses



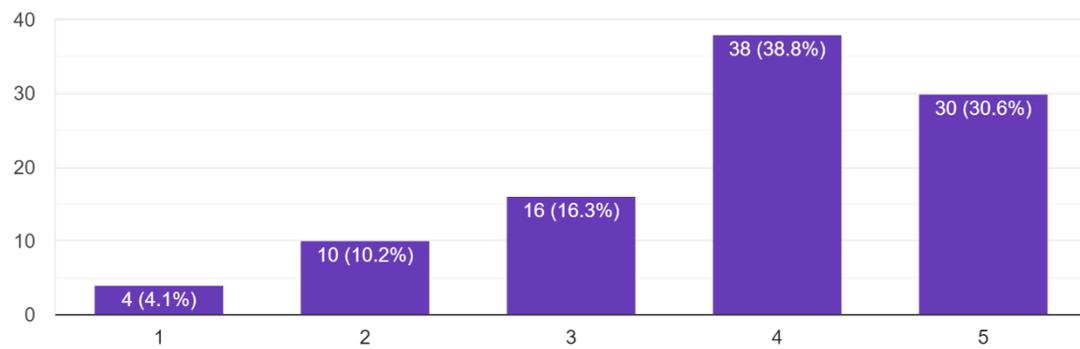
### Your child/children's activity is affected by technology?

97 responses



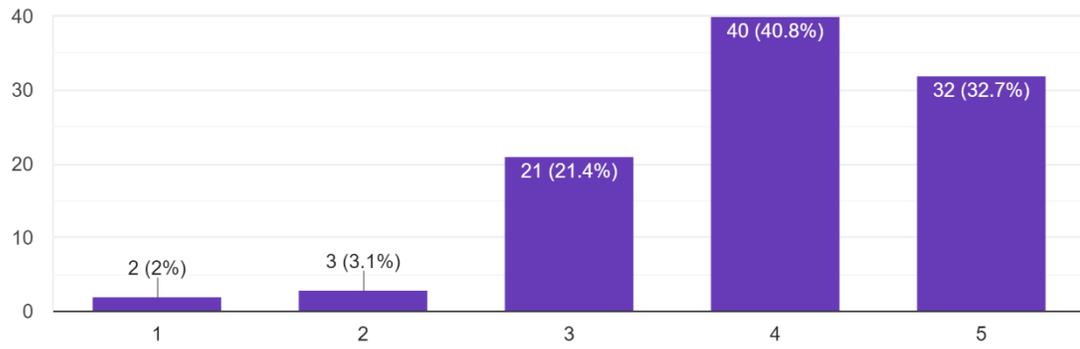
### How likely are you to use an application for locating local sports teams for your child/children?

98 responses



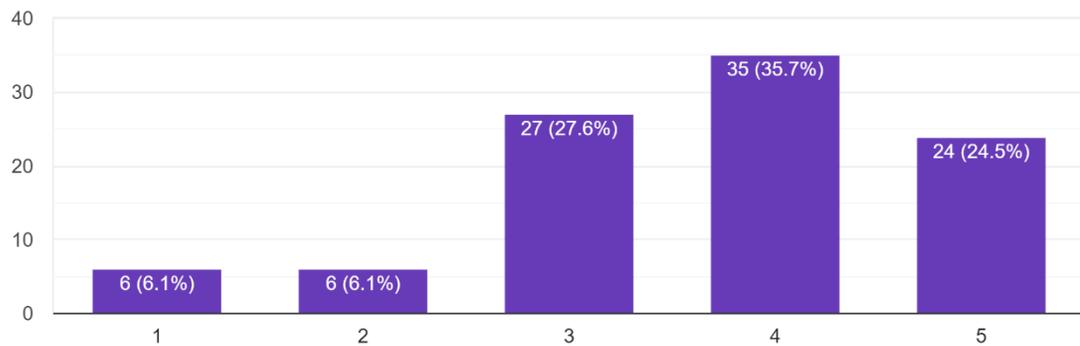
### Sign-ups for sports teams via mobile or website application is a promising idea?

98 responses



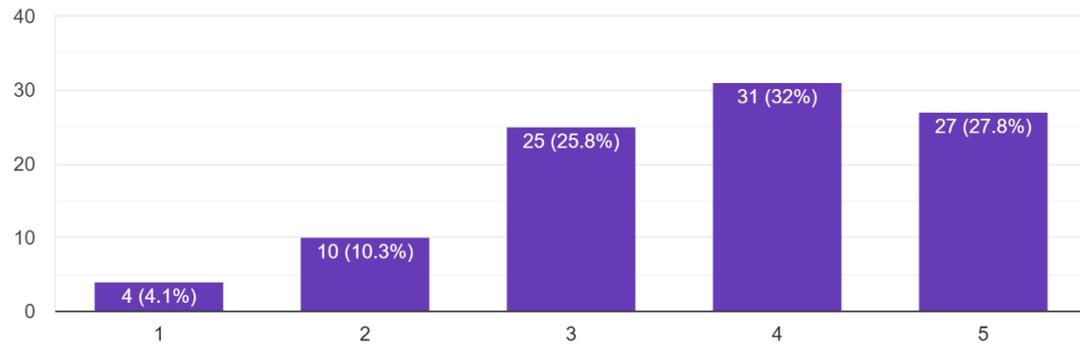
### Communication with other parents in relation to your child/children's sport is frequent?

98 responses



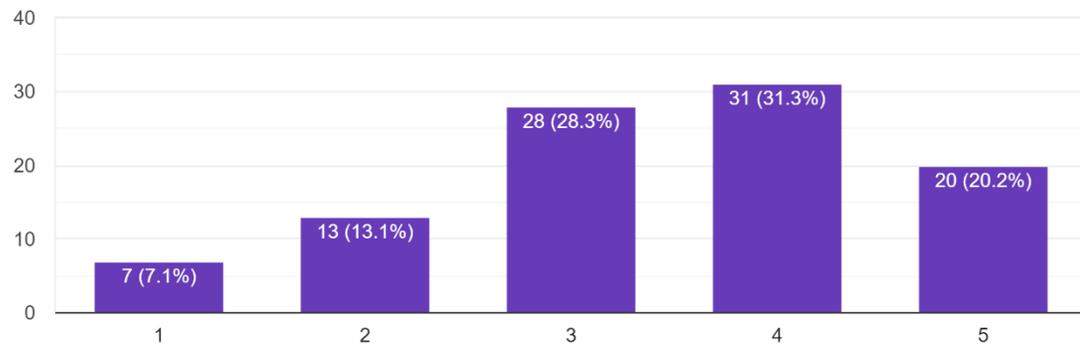
### Protected disclosure for any issues with parenting at matches/training is useful?

97 responses



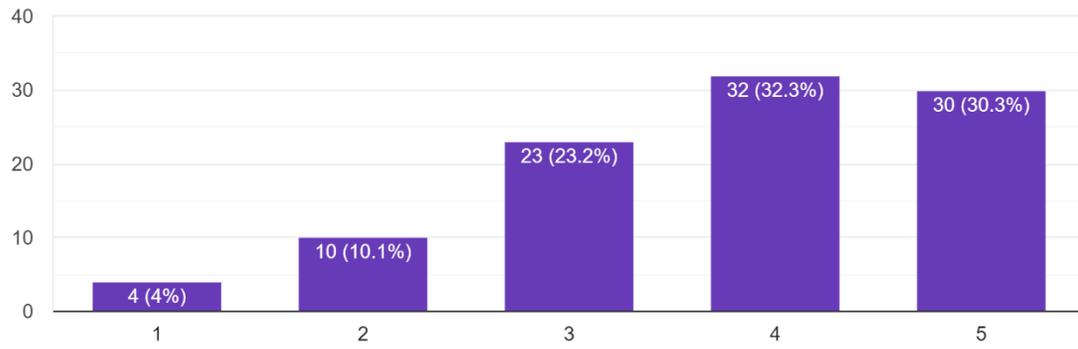
### How likely would you be in volunteering with your local sports club/team?

99 responses



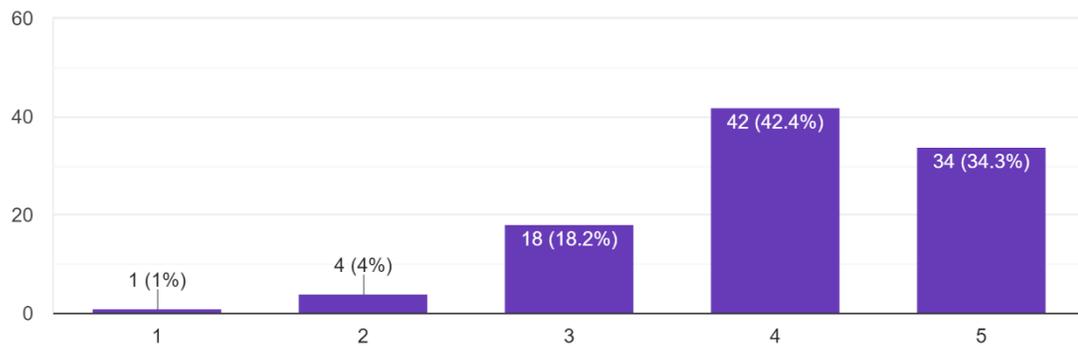
How likely are you to look for information for sporting camps during summer and school holidays etc.?

99 responses



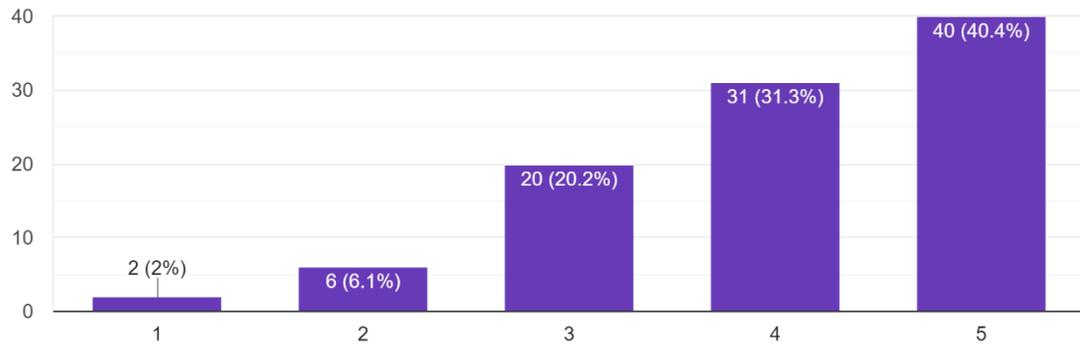
A reward system on an application for you to update on behalf of your child/children would motivate them to ...ple stars/points for matches played?)

99 responses



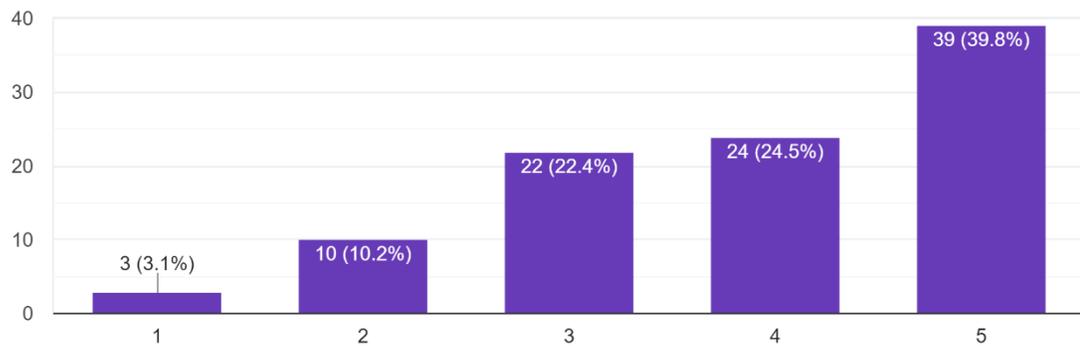
### Information on sporting costs for your child/children would be useful to you?

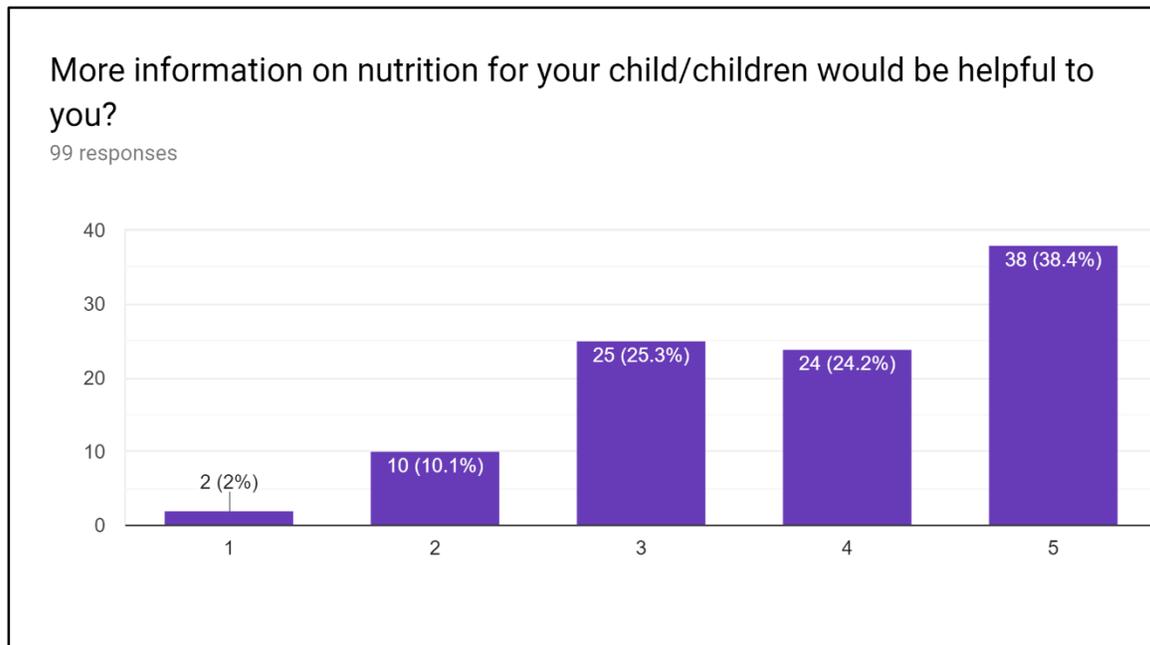
99 responses



### How likely are you to purchase club gear and merchandise for your child/children?

98 responses





### ***The Survey Conclusion***

The survey was created through Google forms and it was distributed via the mediums of social media and email to the relevant stakeholders. The survey was open to replies for a three week duration to gather a sufficient sample size, after 101 responses were gathered the survey was adjusted to not accepting responses.

The opening questions 1-5 of the survey were to gather information about the potential customer of the Supporting Sporting Parents application. The gender divide of the participation pool was almost equally split with 52.5% female and 46.5% male respondents with a minor proportion of 1% preferring not to stat their gender, this split provided a neutral balance of gender. A vast number of participants have more than one child with a combined percentage of 77.2% from 2, 3 and 4+ children, meaning that the application will need to allow for the management of more than one child for parents. The most popularly used social media platforms were WhatsApp and Facebook highlighting they have the greatest suitability to be incorporated into the application over Twitter and Instagram who have a greater number of never use responses. The most common age bracket for children was 6 to 11 followed by 12 to 15 with 27.7% which will encourage the application to be more focused on these age brackets. The top three highest participation figures in sport were in soccer 51%, Gaelic football 43.9% and hurling 22%. This would suggest that these sports should form the fundamental selections of the application as they have the larger participation figures.

Questions 6 to 10 were utilised to gather the demand for the application and to validate it was a viable idea. 43.9% agreed and 33.7% strongly agreed that sports had helped their child gain friends, which could be used as a selling point for the application. Surprisingly the majority of children are meeting the daily recommended exercise duration of one hour but one fifth 20.4% are not meeting this recommendation. Responses showed that there is agreement technology is having an effect on activity of children with only 1% strongly disagreeing and 6.2% disagreeing. A demand for the application was verified with a high percentage of responders agreeing they would use the application to locate sports teams for their children. Approval was received in relation to sign-up for sports teams being a promising idea, highlighting a requirement for the application to facilitate this process.

The remaining questions in the survey were to gather stakeholder needs and validate previously derived requirements from the other elicitation techniques. Communication with other parents in relation to their children's sport is frequent with higher figures in agreement than not. Protected disclosure for reporting issues is a requirement gathered for the application, with a substantial 32% agreeing and 27.8% strongly agreeing. Most survey participants were likely to volunteer than not with a combined 51.5% responding to likely and very likely, providing a need to cater for this feature in the application. The majority of responders are likely to seek information in regard to sporting camps with higher figures responding to likely. A great number of responders agreed that a reward system would motivate their children to exercise more with only a combined total of 5% in disagreement. Information on sporting costs would be extremely useful to participants with 40.4% strongly agreeing which would suggest this information may be hard to find currently. Most participants are likely to purchase club gear and merchandise, this would require information on merchandise or the ability to purchase it in the application. Information in regard to nutrition was supported with 38.4% strongly agreeing and a small 2% in the contrasting end of the scale.

In conclusion the survey was a successful tool for my project which helped to gather customer information, application demand along with new requirements. Some requirements were validated and the survey responses will be useful as part of MoSCoW analysis.

### *Survey Requirements Gathered*

- Application should integrate WhatsApp and Facebook

- Application should have soccer, Gaelic football and hurling
- A sign-up page for sports teams
- A communication function to interact with other users
- Provide protected disclosure to report issues
- Ability to find volunteering opportunities
- Provide information on sporting camps (Summer, Easter)
- A reward system for physical activity
- Provide information on sporting costs
- Ability to purchase equipment and club merchandise
- Provide information on nutrition and health

### 3.3 Interviews

#### *Interview One*

##### *Participant:*

Soccer Manager

##### *Interview Questions and Answers*

##### **Q1. Do you feel technology has an influence on children participating in sport? (How, Why)**

My immediate answer would be that technology has a negative influence on children participating in sport. The more children are on online or playing PlayStation and Xbox the less they are physically playing sport outdoors or participating with sports clubs.

However technology can, if used in the correct ways, have a positive influence on children participating in sport. With the level of information and tutorials available online with the likes of YouTube and social media pages, technology can help children improve their technical, physical and mental skills.

##### **Q2. Do you think my application would have an impact on participation figures? Why?**

Yes. It can improve footfall initially to attract participants to sports clubs. Family's like my own that have been involved in clubs for generations may not use the application as they've a direct connection with the club but the application would be a perfect tool for family's that have no affiliation with clubs but want to get themselves or their children involved in one and need somewhere to start.

**Q3. Has your club changed any of its processes because of technology? If so, give example.**

Yes, the senior player teams must register with Leinster Senior League online where previously it was via hardcopy and post.

The traditional way of finding out your soccer fixtures, trial dates or match reports was via The Evening Herald and The Star newspapers. Both have put an end to these sections in the paper due to massive drops in sales caused by people using the internet instead to view this information which this application could take advantage of. Club finances are also been run through applications like My Club Finance.

**Q4. What features would you like to see in the application?**

- **Club Profiles** – to get an overview of the actual club, its history and background information.
- **Individual Team Profiles** – to provide information on a team by team basis, the team age, league position and their availability status.
- **Manager Profiles** – to provide information of the manager to the parent which may feel more personal to them, this information may include manager qualifications, experience and their own ethos.
- **Player Statistics** – provide stats of players, games played and goals scored etc, to measure their performance.
- **Nutritional Advice** – to optimise the child’s physical capability by ensuring they are fuelling themselves with the right foods or at least making some healthier choices in their diet.
- **Coaching Tutorial Links** – tutorials of drills, attacking or defending etc. for the child to improve if they wish to do so.
- **Homework** – I always give players a certain skill to work on and encourage parents to monitor their child’s “homework”, its important in my view.

**Q5. Do you see any problems with the application idea?**

Yes, parents’ messenger I have seen and heard of many problematic parents at various clubs causing arguments on public social media sites as well nasty debates in WhatsApp groups. If parents want to contact each other I’d leave them to exchange phone numbers, there are plenty of ways to contact each other. Many clubs have banned these groups and I agree. My belief is that if there is problems or

issues that need to be resolved, you arrange a meeting and air your grievances face to face with the committee or management.

**Q6. How often do parents contribute to volunteering with the team/club?**

In my own experience, it all depends on each individual parents' characteristics, it can be a mixed bag. There are parents who offer an essential helping hand by cleaning jerseys, collecting subs, putting up and taking down football nets. More often than not a team is run by a parent, you will always find there are also a small minority of parents that sadly aren't there at all. Each parent is different and may have certain problems of their own behind so I would never judge them.

**Q7. What do you think parent level of knowledge on sports health and nutrition is?**

Very low, a section on the application for nutritional advice would be a huge benefit.

**Q8. How much time is spent dealing with the sign-ups of players?**

It can vary sometimes you may get lucky and spend very little time when a team will sign-up straight away at the first training session and play together for years to come. In contrast some teams may spend months dealing with sign-ups of players that are not fully committed. I think sign-ups through the application would make the process easier and more convenient for the parent and allow the club to reduce its physical documentation work load. A lot of the times parents will forget about the sign-ups sheets but if there were notifications or reminders in the application they may not be as forgetful.

**Q9. How much exposure do you feel your club/team has in the local community?**

Social media is something we've really worked on in recent years and the exposure has been of huge benefit in generating interest and the profile of our club. If social media links were incorporated into the application, I think it would help gain exposure for clubs.

**Q10. Is there any additional information you would like to add?**

Great idea, I think this application could be a real asset to local sports clubs. An analytics tool for clubs would be useful to view activity of the club's parents to

accommodate their needs better, or a feedback page for parents to leave a review to make the club more efficient going forward by correcting areas for improvement.

### ***Interview One Outcome***

This first interview was very positive, the interview provided a viewpoint from the soccer managers perspective and it highlighted to me their needs from the application. The interviewee was not a technical individual but understood what is needed from experience on the front line, a number of additional requirements were gathered from this interview.

### ***Interview One Requirements Gathered***

- Provide access to online tutorials
- Provide fixture lists
- Provide Trial dates
- Provide match reports
- Profiles for sports clubs
- Profiles for individual teams
- Profiles for sports managers
- Provide player statistics
- Provide nutritional information
- Ability to assign sporting homework
- Application notifications
- Link to sports club's social media pages
- An analytics tool for clubs to analyse their user's activity
- A feedback page for user's

### ***Interview Two***

#### ***Participant:***

Games Promotion Officer with Dublin County Board

#### ***Interview Questions and Answers***

**Q1. Do you feel technology has an influence on children participating in sport? How, Why**

Yes, a negative influence too many children have adopted video games consoles and applications such as YouTube etc. as hobbies to replace outdoor and physical activities.

**Q2. Do you think my app idea would have an impact on participation figures? Why?**

Yes it would modernise sports clubs but I think the issue would be getting the application into the hands of the parents of kids who aren't already involved in sport.

**Q3. Are many of the children you coach in schools involved in teams outside of school?**

It depends on the school some schools would have well over two thirds of kids participating in sports outside of school. There are other schools though where it would be common for less than a third to play, it would be a good idea for this application to seek promotion through schools as it may increase participation figures.

**Q4. What features would you like to see in the application?**

- **Sports Club Contact Details** – to allow parents to reach out and communicate if needed
- **Information on Clubs Camps** - Easter/Summer/Halloween camps are often a great way to recruit new players for the club.
- **Ability to Update Training Times** - as many clubs change their training times every year or even twice a year in some instances.

**Q5. Do you see any problems with the application idea?**

Typically the parents who want their kids to be active will go out of their way to find a club for their kid. The only problem would be how to get the application into the hands of the parents of kids who don't play already and the parents probably aren't as proactive in looking for activities.

**Q6. How often do parents contribute to volunteering with the team/club?**

Varies depending on the team, some teams have large groups of mentors where ten or more parents will coach the kids and share responsibilities such as lifts, organising refs etc. Other teams may only have three or four mentors.

**Q7. What do you think parent level of knowledge on sports health and nutrition is?**

On average it seems to be improving in my opinion.

**Q8. How much time is spent dealing with the sign-ups of players?**

Time spent dealing with sign-ups is moderate parents contact me, I provide them with training times and location for example. I let the mentors know to expect the new player, when the player arrives it is up to that parent to decide if they want to join and register to be a club member.

**Q9. How much exposure do you feel your club/team has in the local community?**

A lot we are the only established GAA club in all of Lucan but there are other clubs with not a lot of exposure that could use this application to increase their presence in their community

**Q10. Is there any additional information you would like to add?**

To entice parents to use the application it would need to be free in my opinion or they will not use and it needs to be in the hands of as many parents as possible. In addition the application would need to ensure the security of all user's data and information as a priority, I would personally not like club information to be accessed or for a parent to have their information breached.

***Interview Two Outcome***

This interview provided information from an individual involved with Gaelic games at a club level and within schools, it was highlighted to me from this interview that it may be a difficult task to get the application in to non-proactive parent's hands. Requirements were gathered from this interview and it presented to me that despite the individual being involved in a different sport from the soccer manager in interview one there is a common viewpoint between the two.

***Interview Two Requirements Gathered***

- Provide contact details for sports clubs
- Provide information on sports club's camps
- Ability to update training times
- Ability to find volunteering opportunities

- Security protection for user data
- Free application to download

### ***Interview Three***

#### ***Participant:***

Parent

#### ***Interview Questions and Answers***

##### **Q1. What are your opening views on the application?**

It is a fantastic idea and there is a gap in the market for an application like this. I think it will solve a lot of problems and save a lot of time for parents.

##### **Q2. From your previous experience do you feel finding and signing-up your children for sports team's a time consuming task?**

Yes it can be a difficult task to find teams as they have social media pages that are active but not frequently updated which poses a challenge of finding training time and locations or the relevant team manager to contact. The sign-up process itself is only moderately time consuming but if it was handled through the application rather than physical documentation it would make for much greater convenience for myself.

##### **Q3. What social media platforms would you advise to be included in the application based on your personal usage?**

I am a user of multiple social media platforms but the main application I use is Facebook and a lot of other parents from my children's team are on Facebook so I think it would be most suited to the market you are targeting. It would make the process of signing up easier if you could login through Facebook or Gmail once there are added measures in place for security.

##### **Q4. What features would you recommend for this application that would make management of your children's sporting activities easier for you as a parent?**

A simple layout that is not too complex to use as some parents are not skilled technically and may not use the application if they cannot comprehend how to work it. I would be concerned with the security of the application as there are children

involved, in order to access or login to the application the user should be verified. However, I often forget passwords so verified users should be able to reset their password.

**Q5. In what way would you like to get notifications about matches and training times etc.?**

I would like to receive notifications through email and phone but I think the option to turn notifications on or off should be included as they can be overloading at times.

**Q6. Would you be more inclined to use a website or mobile application if developed?**

I would be more inclined to use a mobile application for easier access and convenience.

**Q7. Through what method do you currently communicate with team managers and other parents?**

Currently via phone call or text message to the team manager and there is a WhatsApp group for parents to discuss and organise travelling to matches, however there can be many messages in the group at once which frequently leads to information been overlooked.

**Q8. Is there any additional information you would like to add?**

Some support for non-technical users via a help page in the application or some form of support that provides details to contact customer care. A method to pay for registration and insurance along with weekly sub payments would be useful if it was secure through a platform such as PayPal.

***Interview Three Outcome***

This interview was beneficial to gain an understanding of a parent's expectations of the Supporting Sporting Parents application. A number of requirements were gathered from the interviewee which will be of great help in meeting their and other parents needs as they will be the main user and audience of the application.

***Interview Three Requirements Gathered***

- Provide Sports club contact details
- A sign-up page to sports teams

- A link to Facebook
- Login through Facebook or Gmail
- Reset password
- A simple application layout design
- Verification of registered users
- Receive email and phone notifications with the function to enable and disable
- A help page for users with customer care contact details
- Payment transactions of fees

### 3.4 Document Analysis

#### *Document Analysis for User-Friendly Requirement*

The application to be user-friendly was a requirement, to give a deeper understanding of what a user-friendly application consists of document analysis was conducted.

**User control and freedom** – providing a pleasant digital space that is easy-to-navigate through where backward steps are possible including undoing and redoing previous actions.

**Flexibility and efficiency of use** – when users increasingly use an application, they demand less interactions for quicker navigation. Users should be provided with the opportunity to customise or tailor the interface to accommodate their needs, enabling regular actions to be carried out more conveniently. A way to achieve this is through allowing the user to mark some features as favourite.

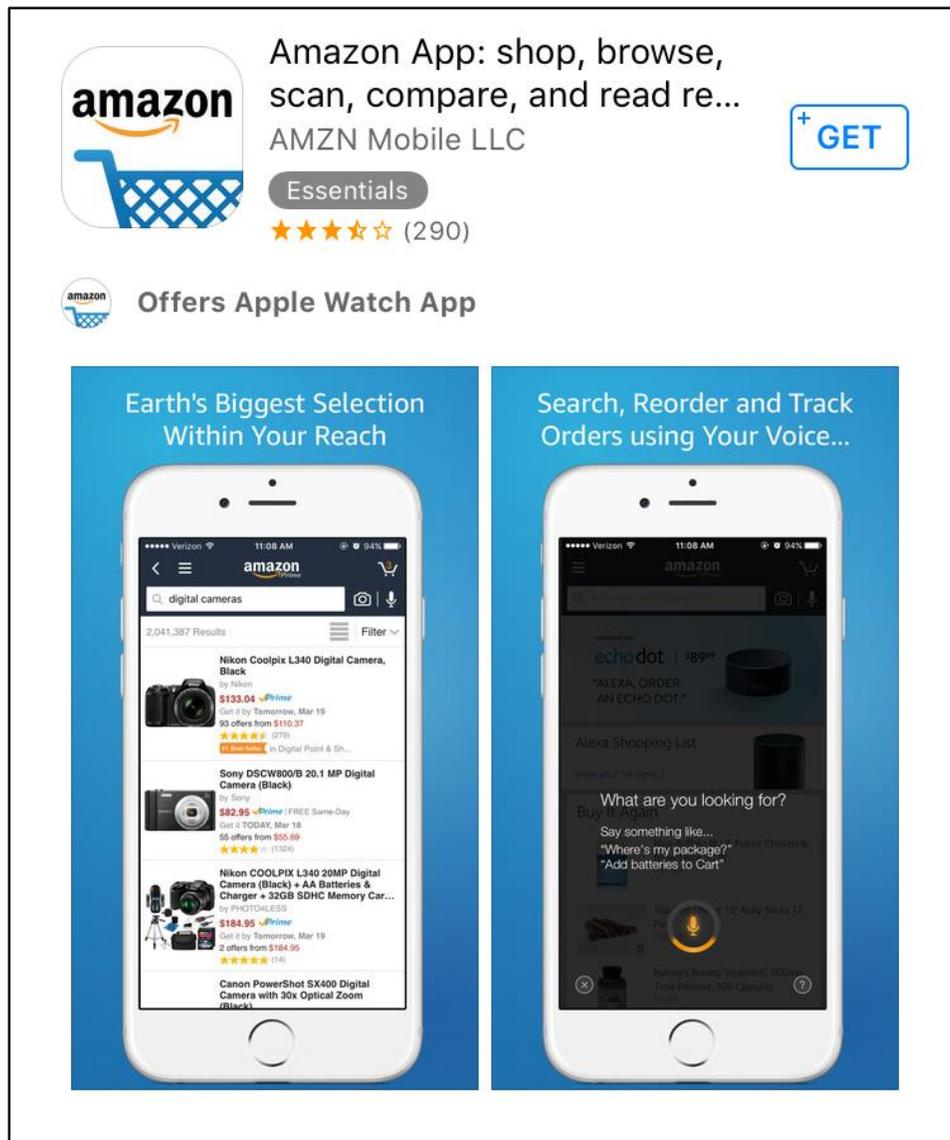
**Aesthetic and Minimalist Design** – Clutter should be at a minimum while only displaying the necessary components for the current actions, whilst providing evident ways of navigating to different content. A user-friendly application can be created by “finding the subtle harmony between function and layout so to express what visitors want clearly and conveniently.” Home page is most important as it sets the style for the entire application and first impression count.

**Help and Documentation** – In the time when a user requires help, it should be located with ease. The help must be specific to the current task and be worded to make it clearly understandable what steps to take to resolve the issue.

(Wallen, 2010) (Wong, 2019)

## Example of Amazon user-friendly application

Amazon was analysed as an existing solution to a user-friendly application, it stores user information enabling with one click the ability to order any item providing speed and minimal navigation. A huge number of books, films and other items are all easily accessible. The important information of the application is conveniently placed, enabling easy navigation and the user to find a way back to the home section. The mobile application mirrors the website and includes all of its functionality. (Weiners, 2019)



(Weiners, 2019)

### *Document Analysis Requirements Gathered*

- Easy to navigate graphical user-interface
- A back button
- A favourites button
- Ability for user to customise layout
- A help page for the user with process documentation

### *Document Analysis for Security Requirement*

Hackers are becoming more advanced each year, first-level key of authentication password and username no longer sufficient. Added techniques are required to support username and password verification.

Security questionnaires – information personal to the user that is required or voluntary to enter into the system while creating account.

Two or multiple factor authentication for example a pin code will provide extra security validation.

Securing Encryption – Encrypting or hashing the username and password when entered into the data fields during the authentication process.

To prevent brute force attacks by continuous hacking script-bots it is vital to have a strong password policy rule in place.

#### Agenda for Password Rule Hardening

1. 8-25 characters long that need at least one capital letter, one unique character and a number
2. A requirement for the user to change their password every 30, 60 or 90 days
3. Unique password history requirement
4. Restriction policy of common words e.g. your name, username or the word password cannot be used or form any part of your password
5. A limit on the number of password attempts e.g. 3 failed attempts requires password reset through controlled validations.

(Lewis,2017)

## **GDPR Compliance**

General Data Protection regulation “lays down rules relating to the protection of natural persons with regard to processing of personal data and rules relating to the free movement of personal data”. (GDPR, 2018)

Personal data shall be:

- (A) - “processed lawfully, fairly and in a transparent manner in relation to the data subject”. (GDPR, 2018)
- (F) - “processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures”. (GDPR, 2018)

Integrity and confidentiality of the personal data of the application will be ensured and it will be processed lawfully in fairness and transparency.

### **The 8 basic rights of GDPR**

Under the GDPR, individuals have:

1. The right to access
2. The right to be forgotten
3. The right to data portability
4. The right to be informed
5. The right to have information corrected
6. The right to restrict processing
7. The right to object
8. The right to be notified

(Sally, 2019)

### **Document Analysis Requirements Gathered**

- Inform user within 72 hours if their personal data is compromised
- Ability for user to request access to their personal data that is kept

- Provide a security questionnaire to support verification
- Request a pin code for multiple factor authentication
- Hash passwords when entered into data fields
- Password must be 8-25 characters long containing one number, one capital letter and one unique character
- User must update their passwords every 90 days
- Common words not permitted to form password
- Password attempts limited to three

### 3.5 Prototyping

#### *Version One Prototype*

##### ***Page Users:***

User 1 = Parent

User 2 = Sports Club Representative



Figure 1 Register Page (User 1 & 2)



*Figure 2 Login Page (User 1 & 2)*

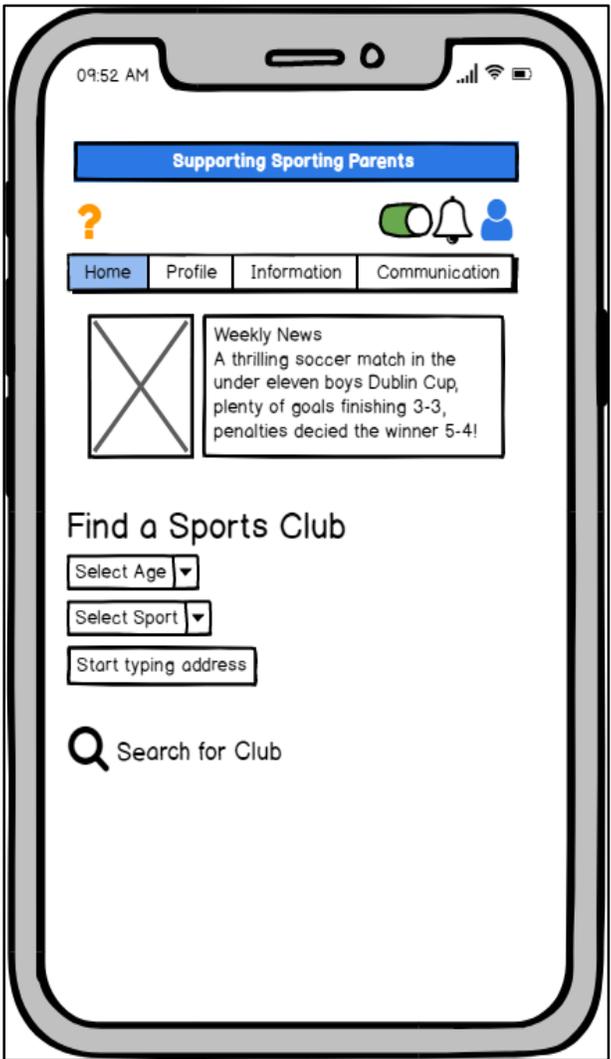


Figure 3 Home Page (User 1)

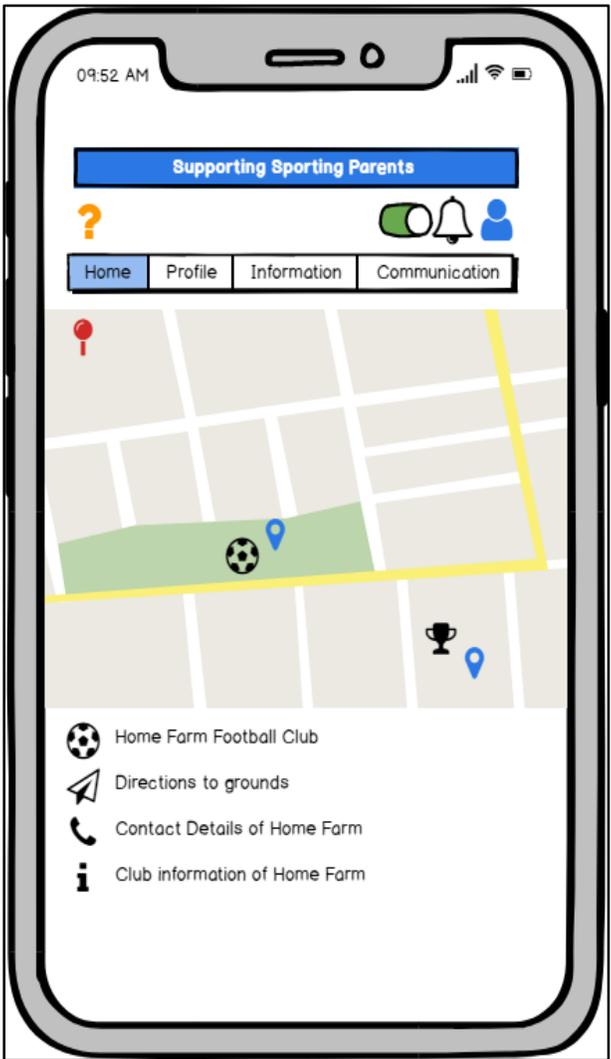


Figure 4 Find Club Location Sub-Page (User 1)

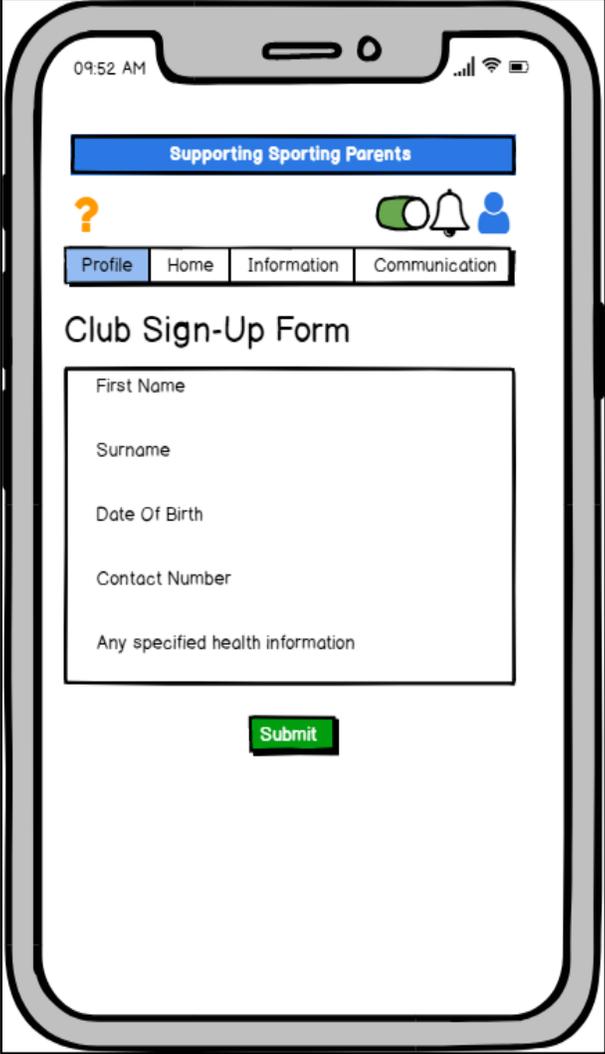


Figure 5 Club Sign-Up Page (User 1)



Figure 6 Profile Page (User 1)

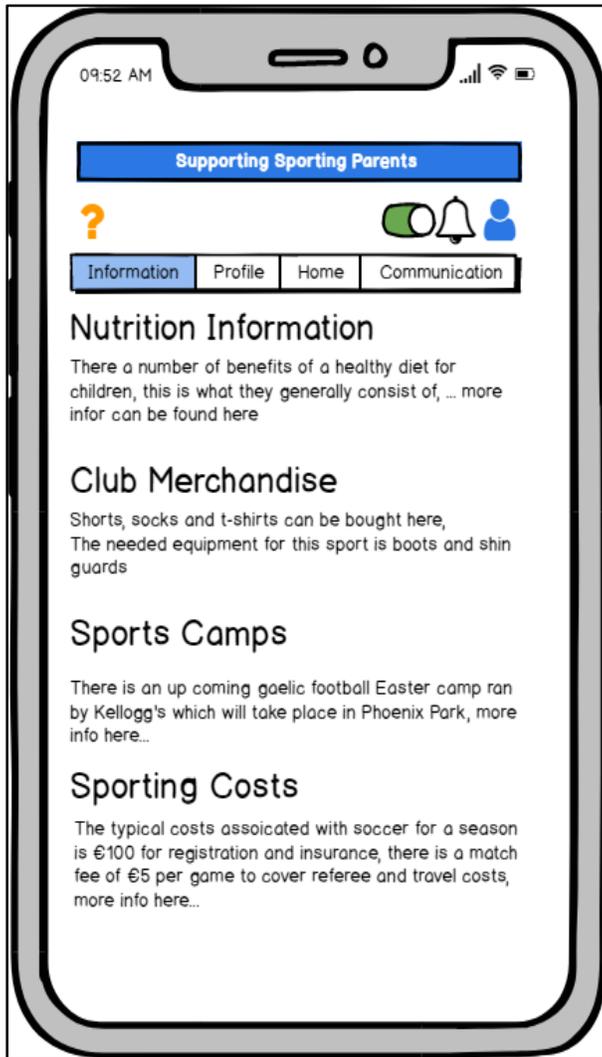


Figure 7 Information Page (User 1)



Figure 8 Communication Page (User 1)



Figure 9 Support Page (User 1 & 2)

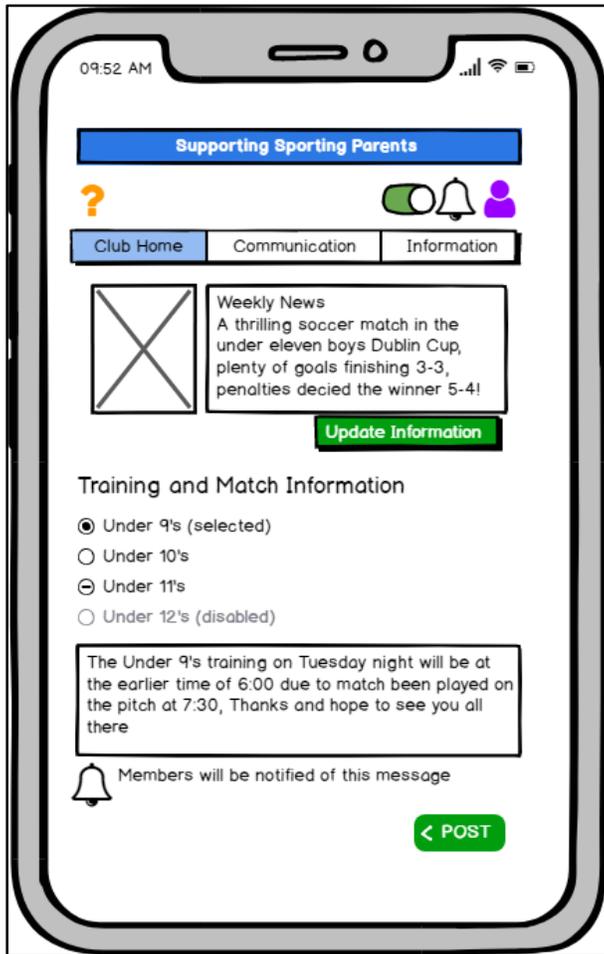
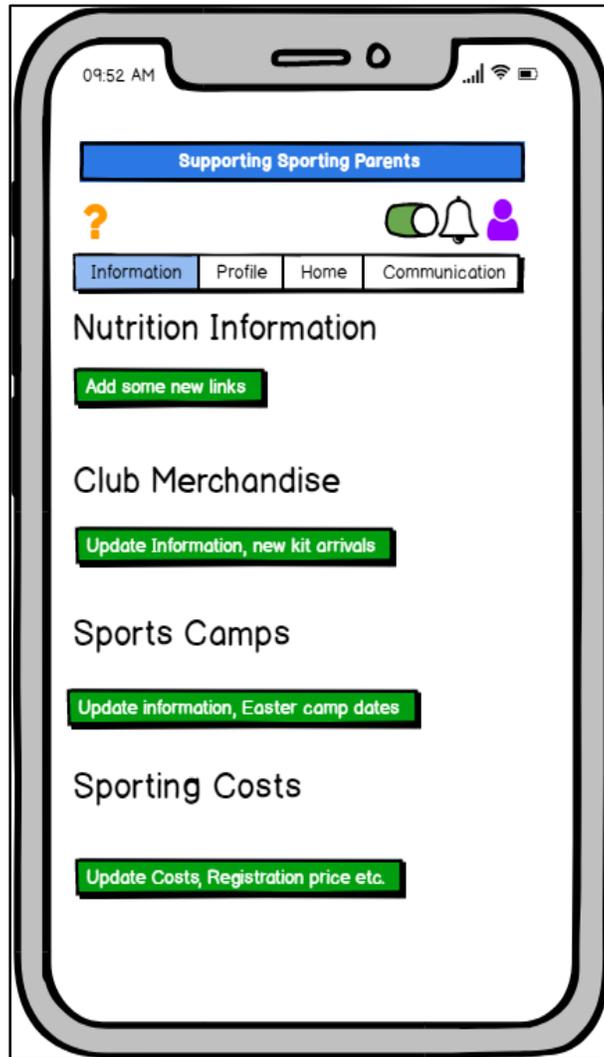


Figure 10 Home Page (User 2)



Figure 11 Communication Page (User 2)



*Figure 12 Information Page (User 2)*

### ***Version One Conclusion***

This initial prototype was created with Balsamiq using the requirements drawn from the survey, interviews and brainstorming session elicitation techniques that were carried out with a variety of stakeholders.

The prototype contains twelve pages in total which aims to meet the majority of stakeholders needs, three of the pages of the prototype are from the point of view of a sports club representative user as they have administrator accessibility and the others pages are based on the parent user of the application.

This prototype will be used for demonstration purposes at a focus group that will be carried out with stakeholders to discuss their views and opinions. The stakeholders will have the opportunity to critique the early view of the potential end product, their feedback will be incorporated to create an improved supplement version of the prototype and to meet their expectations to a higher standard.

### *Version Two Prototype*



*Figure 13 Register Page (User 1 & 2)*



Figure 14 Login Page (User 1 & 2)

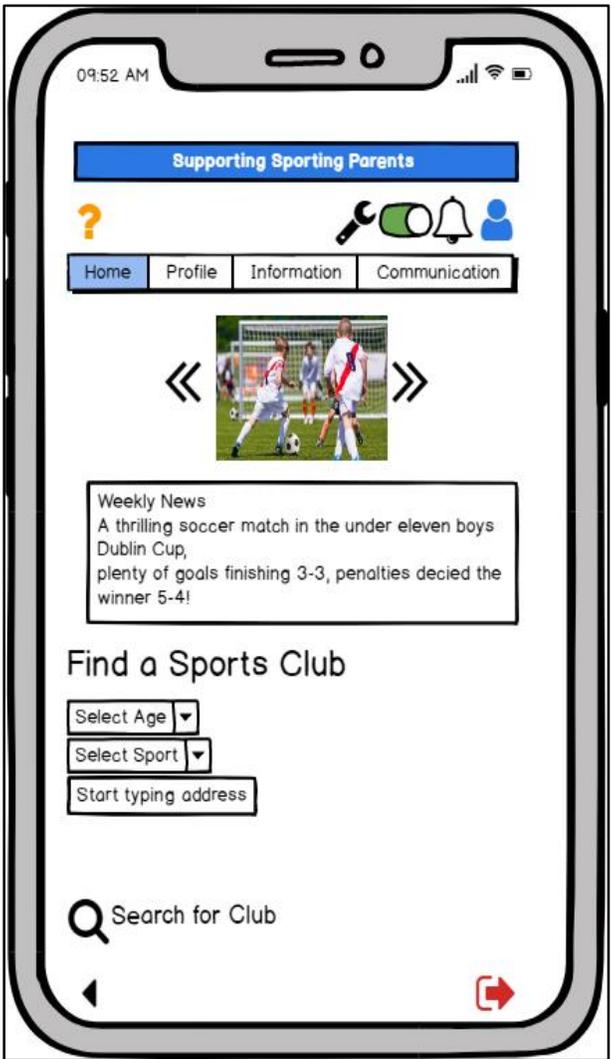


Figure 15 Home Page (User 1)



Figure 16 Find Club Location Sub Page (User 1)



Figure 17 Club Sign-Up Page (User 1)

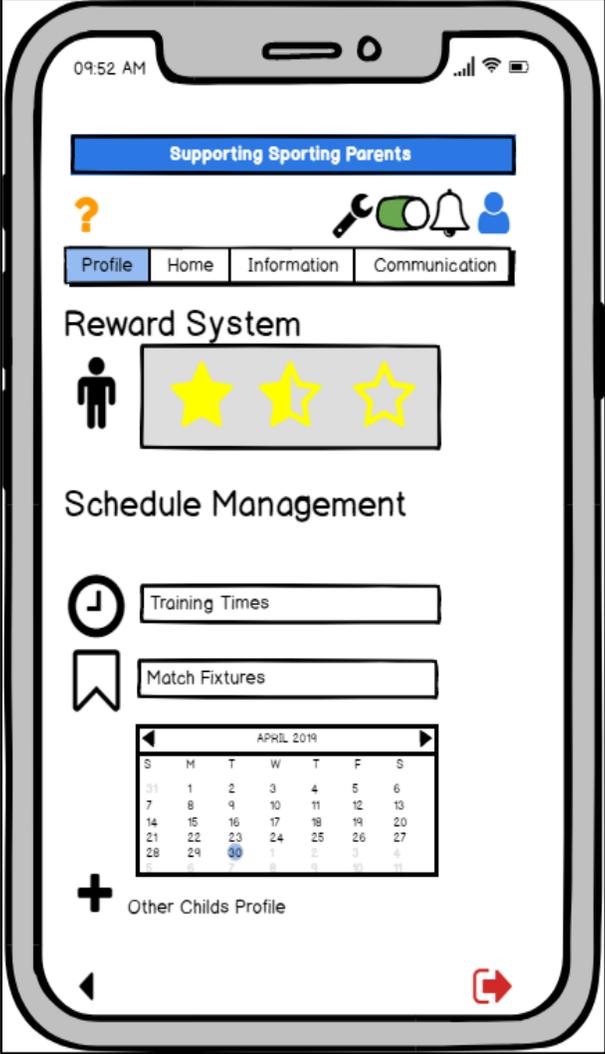


Figure 18 Profile Page (User 1)

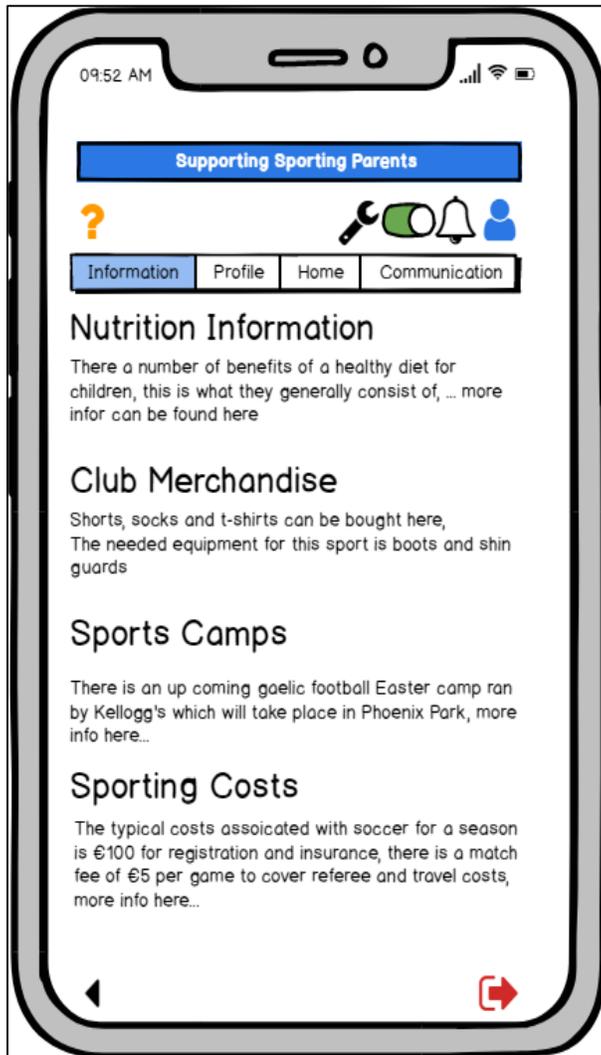


Figure 19 Information Page (User 1)

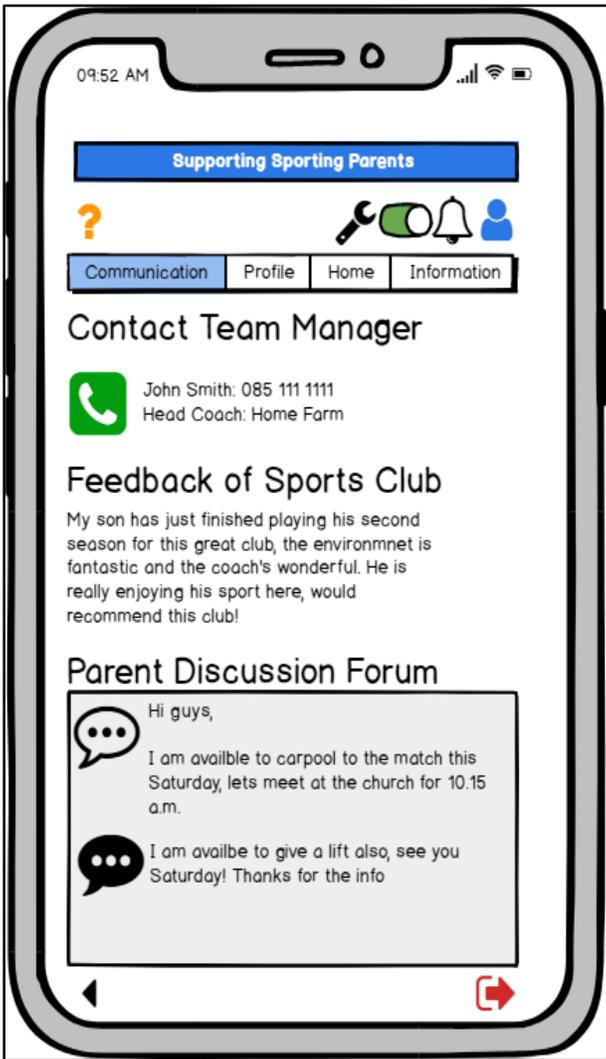


Figure 20 Communication Page (User 1)



Figure 21 Support Page (User 1 & 2)

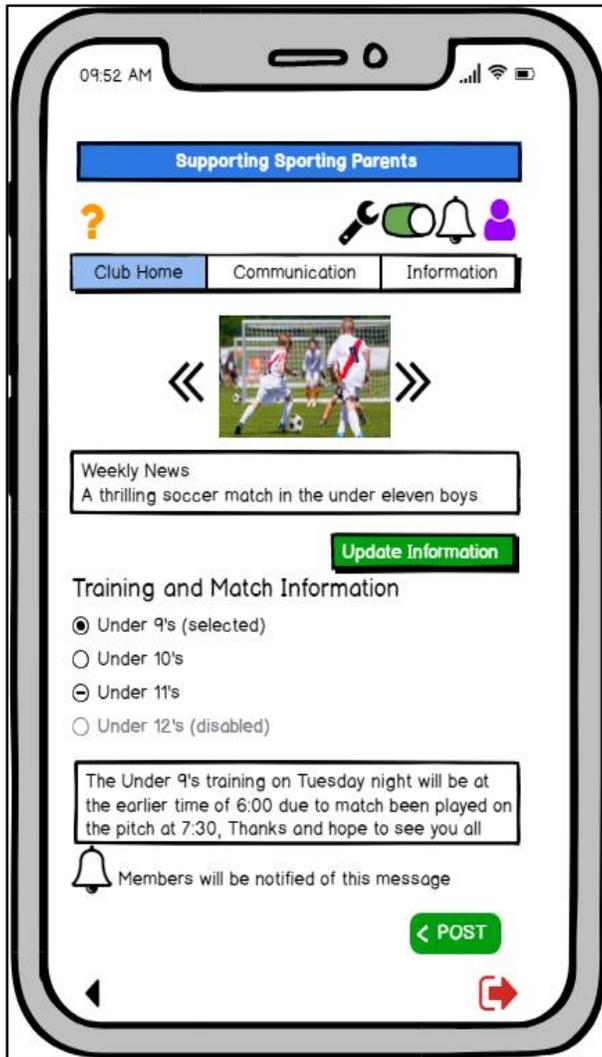
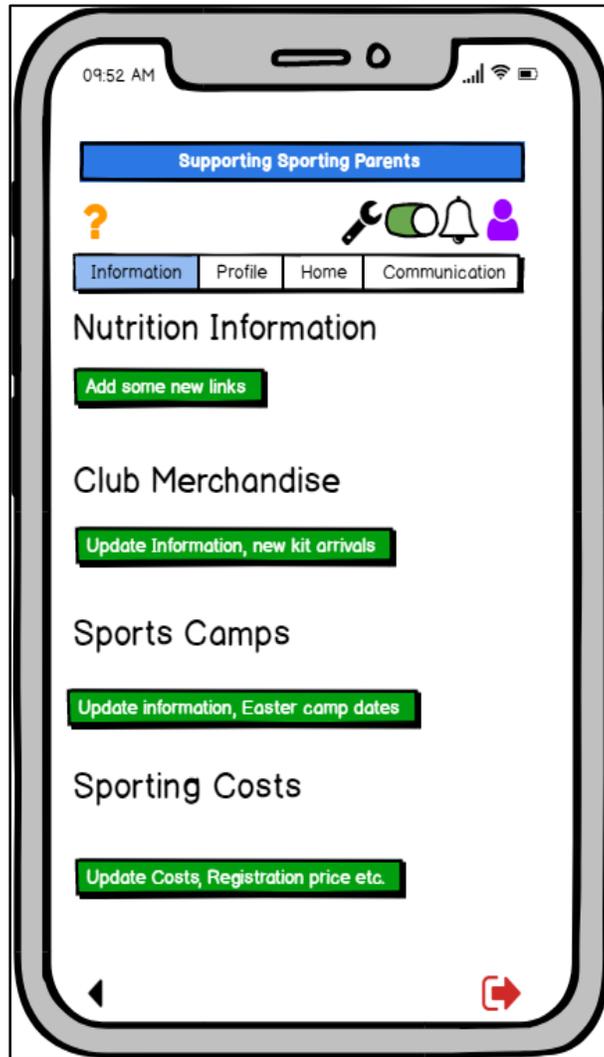


Figure 22 Home Page (User 2)



Figure 23 Communication Page (User 2)



*Figure 24 Information Page (User 2)*

### ***Version 2 Conclusion***

The development of this secondary prototype occurred after the focus group was conducted, the suggestions and inputs from the stakeholders were implemented to improve the application design and features.

The addition of a red coloured sign-out button was implemented at the bottom right of each page after login to allow the user to logout. Each page after login now facilitates the user to return to the previous page with the inclusion of a back arrow button. The application page's after login now include a tool icon at the top right of the page to allow the user to customise their layout for example.

The “home page” for both users was modified as it didn’t satisfy the stakeholders of the focus group as they did not find it visually appealing and full potential use of the available space. The alteration included an image gallery with arrows to allow capability of switching between images instead of a single image, the gallery is now directly above the news instead of beside it like in prototype one. The sign-up form page now offers functionality to complete a payment transaction. The finding a sports club page now has a social media link to Facebook to view the club’s profile and activity on the platform. The finding a sports club page now displays an arrow on the map and provides the distance to the desired destination. The profile page added a plus sign to the lower end of the page to facilitate more than one profile.

The vast majority of feedback of the first prototype at the focus group was positive and the mock-ups were complimented by the stakeholders. However, the small number of minor changes make a for a huge improvement in my opinion and prototype two exceeds prototype one.

### 3.6 Focus Group

After the initial prototype was developed a focus group was carried out with a number of stakeholders which included potential users of the Supporting Sporting Parents Application, the specified product of the focus group was the prototype mock-ups that were created. The business analyst acted as the moderator for the focus group. The objective of the focus group was gathering perspectives and attitudes towards the prototype from the participants which was outlined at the beginning of the session. The prototype was demonstrated with complementary explanations on a page by page basis to the audience of the focus group, the prototype conveyed a substantial portion of the requirements gathered from the earlier elicitation techniques.

The participants of the session gave feedback in relation to the design layout and the functions of the application. Overall the feedback received was positive, the application was classed as user-friendly, consistent and incorporated good use of icons. The login and registration pages were complimented on their simplicity and no alterations were required from the audience for these pages. The profile page was discussed with great pleasure as the reward system was viewed from a positive perspective heightening customer satisfaction. The communication and information pages were approved as providing essential features and functions in an efficient and well-planned layout.

Despite the majority of the session feedback being largely positive there were recommendations for new-features and changes made by the participants.

#### *Focus Group Requirements Gathered*

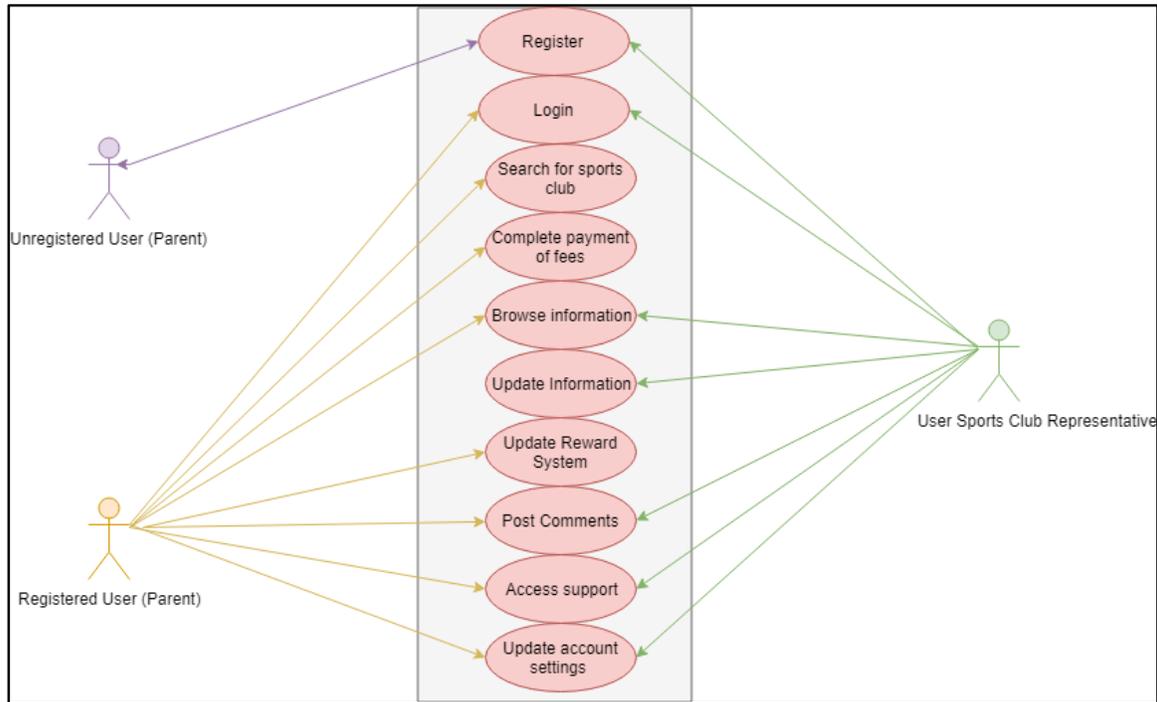
- The addition of a red coloured sign-out button for users
- The inclusion of a back button, for the user to return to a previous page
- A link to social media page of the clubs on the “search for club page”
- The addition of a button to facilitate more than one profile on the “profile page” for the user
- A settings option for the user to customise and make changes etc.
- The maps feature to display the distance to the selected location
- The readjustment of the homepage to be more appealing for the user
- A populated image gallery with arrows to allow the switching of images
- An option for the user to carry out payments in addition with the sign-up page

The remainder of the application prototype received the participants approval and did not require any modifications or alterations as they met customer needs and expectations.

#### *Focus Group Requirements Gathered*

- A button to sign-out
- A back button
- Sport’s clubs to be have their social media pages linked
- A button to access settings
- Distance to location displayed on the map
- An image gallery
- Ability for a payment transaction on sign-up page

### 3.7 Interface Analysis



*UML Use Case Diagram*

#### ***Use Case Diagram Users/Stakeholders***

- Unregistered User (Parent)
- Registered User (Parent)
- Sports Club Representative

The UML use case diagram is a visual representation of the interactions between the different users and the application. There are three actors in the diagram which have been labelled accordingly, the number of different use cases are represented within an oval shapes. There are arrows linking the individual actors to the relevant use cases they will interact with. For example the registered user and sports club representative can browse information on the application while an unregistered user is limited to one interaction which is to register. In addition only the sports club representative can update the browsable information where as the parent user can view and not alter. This diagram will provide safety and security as restrictions will be in place for users to only access features and functions, they are permitted to.

#### 4. High-Level Requirements Bucket

- 1) Logo link to homepage (Brainstorm)
- 2) Registration of user details (Brainstorm)
- 3) Login page for the user (Brainstorm)
- 4) Geo-location to locate sports clubs (Brainstorm)
- 5) Directions to sports clubs (Brainstorm)
- 6) Comment on a chat forum to communicate with other users (Brainstorm, survey)
- 7) Update match results (Brainstorm)
- 8) Update training times (Brainstorm, interview 2)
- 9) The user should be Garda vetted (Brainstorm)
- 10) Plan carpooling schedules (Brainstorm)
- 11) A reward system for physical activity (Brainstorm, survey)
- 12) Provide information on the cost of membership (Brainstorm, survey)
- 13) Provide information on the types of membership (Brainstorm)
- 14) Ability to purchase equipment and club merchandise (Brainstorm, survey)
- 15) Provide information on sporting camps (Summer, Easter) (Brainstorm, survey, interview 2)
- 16) Provide guidelines for parent behaviour at sporting activities (Brainstorm)
- 17) Provide information on nutrition and health (Brainstorm, survey, interview 1)
- 18) Provide information on major sporting events (Brainstorm)
- 19) Ability to check team availability (Brainstorm)
- 20) Provide information on team history (Brainstorm)
- 21) Ability to select a category for sports (football, GAA etc.) (Brainstorm)
- 22) Ability to select a category for age (Brainstorm)
- 23) Provide a user-friendly application (Brainstorm, Interview 3 Document Analysis,)
- 24) Display an image gallery of sporting events (Brainstorm, Focus Group)
- 25) Provide a calendar widget to allow the user to schedule (Brainstorm)
- 26) Application should link to WhatsApp and Facebook (survey, interview 1, interview 3, Focus Group)
- 27) Application should have soccer, Gaelic football and hurling (survey)
- 28) A sign-up page for sports teams (survey, interview 3)
- 29) Provide protected disclosure to report issues (survey)
- 30) Ability to find volunteering opportunities (survey, interview 2)
- 31) Provide access to online tutorials (Interview 1)
- 32) Provide fixture lists (Interview 1)
- 33) Provide Trial dates (Interview 1)
- 34) Provide match reports (Interview 1)

- 35) Profiles for sports clubs (Interview 1)
- 36) Profiles for individual teams (Interview 1)
- 37) Profiles for sports managers (Interview 1)
- 38) Provide player statistics (Interview 1)
- 39) Ability to assign sporting homework (Interview 1)
- 40) Application notifications (Interview 1, interview 3)
- 41) An analytics tool for clubs to analyse their user's activity (Interview 1)
- 42) A feedback page for user's (Interview 1)
- 43) Provide contact details for sports clubs (Interview 2, interview 3)
- 44) Security protection for user data (Interview 2)
- 45) Free application to download (Interview 2)
- 46) Verification of registered users (Interview 3)
- 47) Login through Facebook or Gmail (Interview 3)
- 48) Reset Password (Interview 3)
- 49) A help page for users (Interview 3, document analysis)
- 50) Payment transactions for fees (Interview 3, Focus Group)
- 51) A back button (Document Analysis, Focus Group)
- 52) A favourites button (Document Analysis)
- 53) Inform user within 72 hours if their personal data is compromised (Document Analysis)
- 54) Ability for user to request access to their personal data that is kept (Document Analysis)
- 55) Provide a security questionnaire to support verification (Document Analysis)
- 56) Request a pin code for multiple factor authentication (Document Analysis)
- 57) Hash passwords when entered into data fields (Document Analysis)
- 58) Password must be 8-25 characters long containing one number, one capital letter and one unique character (Document Analysis)
- 59) User must update their passwords every 90 days (Document Analysis)
- 60) Common words not permitted to form password (Document Analysis)
- 61) Password attempts limited to three (Document Analysis)
- 62) A button to sign-out (Focus Group)
- 63) A button to access settings (Focus Group, Document Analysis)
- 64) Distance to location displayed on the map (Focus Group)

#### 4.1 MoSCoW Analysis

MoSCoW analysis was used as not all documented requirements can be delivered in the project due to time and cost restraints. MoSCoW analysis was undertaken to

prioritise the high-level requirements list gathered from the various requirement elicitation techniques carried out. The results of the conducted MoSCoW analysis can be seen in the below table.

Must Have	Should Have	Could Have	Won't Have
R1	R9	R13	R16
R2	R10	R20	R18
R3	R12	R37	
R4	R14	R38	
R5	R19	R39	
R6	R29	R41	
R7	R30		
R8	R31		
R11	R32		
R15	R33		
R17	R34		
R21	R36		
R22	R42		
R23	R52		
R24	R55		
R25	R56		
R26	R59		
R27	R60		
R28	R64		
R35			
R40			
R43			
R44			
R45			
R46			
R47			
R48			
R49			
R50			
R51			
R53			
R54			

R57

R58

R61

R62

R63

## 5. IEEE Requirements Specification

### 5.1 Introduction

#### 5.1.1 Purpose

The IEEE requirement specification document is being developed for the Supporting Sporting Parents application. The purpose of the document is to outline with complete clarity the functional and non-functional requirements related to the Supporting Sporting Parents mobile application. The document will be delivered to the application customer for a reviewing process before it is passed for development to commence.

#### 5.1.2 Scope

The Supporting Sporting Parents application is being developed for a number of stakeholders, the goal of the application is to provide parents with a platform to manage their children's sporting teams and clubs. The application will allow for the parent user to locate sports teams near to their residence and sign-up their child through the application if they desire. The application will provide a user for a representative of a sport's club to update the club's information such as training times and schedules for example. There is a need for the application as it will facilitate the busy parent and it will better local sports club's technology in the digital era.

#### 5.1.3 Definitions, Acronyms and abbreviations

**User:** A participant that interacts directly with the Supporting Sporting Parents Application

**Stakeholder:** An individual who can either affect or be affected by the Supporting Sporting Parents Application.

**Administrator:** A user that will be approved to make certain changes and alterations to the application.

## 5.2 Functional Requirements

### 5.2.1 User Class One – Parent

Functional Requirement 1		
<b>ID:</b> FR1	<b>Title:</b> Logo Link to Home Page	<b>Priority:</b> Must have
<b>Description:</b>	This logo link should be clearly visible at the top of every page, when clicked it should allow the user to redirected back to the Homepage	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	Top of every page	

Functional Requirement 2		
<b>ID:</b> FR2	<b>Title:</b> Register link	<b>Priority:</b> Must have
<b>Description:</b>	User should be directed to the Register Page where they can input their details into the data fields including forename, surname, email address and password to create an account for the application. They should then be able to submit their details to complete the registration process.	
<b>Justification:</b>	Gathered in brainstorming session	
<b>Location:</b>	On Login Page	

Functional Requirement 3		
<b>ID:</b> FR3	<b>Title:</b> Logging in	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to enter their account email address and password into the data fields and select login in order access the application	
<b>Justification:</b>	Gathered in brainstorming session	
<b>Location:</b>	On Login Page	

Functional Requirement 4		
<b>ID:</b> FR4	<b>Title:</b> Login through Facebook or Gmail	<b>Priority:</b> Must have

<b>Description:</b>	The user should be able to login to the application through their Facebook or Google account when they select the relevant icon on the register page
<b>Justification:</b>	Gathered from interview 3
<b>Location:</b>	Bottom of the Register Page

<b>Functional Requirement 5</b>		
<b>ID:</b> FR5	<b>Title:</b> Reset Password	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to reset their password if they click the “forget Password” link	
<b>Justification:</b>	Gathered from interview 3	
<b>Location:</b>	On Login Page under login credentials data fields	

<b>Functional Requirement 6</b>		
<b>ID:</b> FR6	<b>Title:</b> Geo-location to locate sports club’s	<b>Priority:</b> Must have
<b>Description:</b>	The application should have a Google maps widget to display to the user their nearest sports clubs from their current location	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	On Find Club Location Sub-Page	

<b>Functional Requirement 7</b>		
<b>ID:</b> FR7	<b>Title:</b> A back button	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to click the back button to be returned to the previous page, the back button will be an arrow head pointing in a left direction	
<b>Justification:</b>	Gathered from document analysis and focus group	
<b>Location:</b>	Bottom Left of every page after login	

<b>Functional Requirement 8</b>		
<b>ID:</b> FR8	<b>Title:</b> A button to sign-out	<b>Priority:</b> Must have

<b>Description:</b>	The application should have a red coloured sign-out button, when clicked should allow the user to logout from their account
<b>Justification:</b>	Gathered from focus group
<b>Location:</b>	Bottom right of every page after login

<b>Functional Requirement 9</b>		
<b>ID:</b> FR9	<b>Title:</b> A button to access settings	<b>Priority:</b> Must have
<b>Description:</b>	The application should have a button when clicked by the user will allow them access to their account settings	
<b>Justification:</b>	Gathered from focus group and document analysis	
<b>Location:</b>	Top of every page after login	

<b>Functional Requirement 10</b>		
<b>ID:</b> FR10	<b>Title:</b> Select a category for sports dropdown	<b>Priority:</b> Must have
<b>Description:</b>	When the user clicks the dropdown for sports, they should be able to select the sport category they wish to choose e.g. hurling	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	On Home Page	

<b>Functional Requirement 11</b>		
<b>ID:</b> FR11	<b>Title:</b> Select a category for age dropdown	<b>Priority:</b> Must have
<b>Description:</b>	When the user clicks the dropdown for age, they should be able to select the age category they wish to choose e.g. Under 10's	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	On Home Page	

<b>Functional Requirement 12</b>
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<b>ID:</b> FR12	<b>Title:</b> Comment on a chat forum to communicate with other users	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to type and post a comment on the parent discussion forum when they click comment	
<b>Justification:</b>	Gathered from brainstorming session and survey	
<b>Location:</b>	On Communication Page	

<b>Functional Requirement 13</b>		
<b>ID:</b> FR13	<b>Title:</b> Payment transactions for fees	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to enter their credit or debit card information into the data fields in the payment section of the club sign-up form in order to complete a transaction	
<b>Justification:</b>	Gathered from interview 3, and focus group	
<b>Location:</b>	On Club Sign-Up Page	

<b>Functional Requirement 14</b>		
<b>ID:</b> FR14	<b>Title:</b> Application Notifications On/Off button	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to select if their notifications to be received from the application are turned on or off by toggling the on and off notifications button	
<b>Justification:</b>	Gathered from interview 1 and interview 3	
<b>Location:</b>	Top of every page after login beside the notification icon	

<b>Functional Requirement 15</b>		
<b>ID:</b> FR15	<b>Title:</b> A sign-up page for sports teams	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to enter their child's details and information into the data fields and complete the form by pressing submit	
<b>Justification:</b>	Gathered from survey and interview 3	
<b>Location:</b>	On Club Sign-Up Page	

<b>Functional Requirement 16</b>		
<b>ID:</b> FR16	<b>Title:</b> Provide a calendar widget to allow the user to schedule	<b>Priority:</b> Must have
<b>Description:</b>	The application should have a calendar that will allow the user to look at past and upcoming dates by browsing through the calendar	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	On Home Page	

<b>Functional Requirement 17</b>		
<b>ID:</b> FR17	<b>Title:</b> Application should link to WhatsApp and Facebook	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to navigate to the sports clubs Facebook profile through the application when they click on the Facebook logo beside the sports club's name	
<b>Justification:</b>	Gathered from survey, interview 1, interview 3 and focus group	
<b>Location:</b>	On Find Club Location Sub-Page	

<b>Functional Requirement 18</b>		
<b>ID:</b> FR18	<b>Title:</b> Display an image gallery of sporting events	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to browse through the image gallery by selecting the left or right facing arrow beside the image	
<b>Justification:</b>	Gathered from brainstorming session and focus group	
<b>Location:</b>	On Home Page	

<b>Functional Requirement 19</b>		
<b>ID:</b> FR19	<b>Title:</b> Provide information on nutrition and health	<b>Priority:</b> Must have
<b>Description:</b>	The application should display information on nutrition and health for the user to view	

<b>Justification:</b>	Gathered from brainstorming session, survey and interview 1
<b>Location:</b>	On Information Page

<b>Functional Requirement 20</b>		
<b>ID:</b> FR20	<b>Title:</b> Provide information on sporting camps	<b>Priority:</b> Must have
<b>Description:</b>	The application should display information on sporting camps for the user to view	
<b>Justification:</b>	Gathered from brainstorming session, survey and interview 2	
<b>Location:</b>	On Information Page	

<b>Functional Requirement 21</b>		
<b>ID:</b> FR21	<b>Title:</b> A reward system for physical activity	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to update the reward system by selecting to update and more stars will be rewarded as a result	
<b>Justification:</b>	Gathered from brainstorming session and survey	
<b>Location:</b>	On Profile Page	

<b>Functional Requirement 22</b>		
<b>ID:</b> FR22	<b>Title:</b> A help page for users	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to access process documentation by clicking on the item. The support page should display information on customer contact details including email address and phone number for the user to view and redirect if clicked	
<b>Justification:</b>	Gathered from interview 3 and Document Analysis	
<b>Location:</b>	On Support Page	

<b>Functional Requirement 23</b>		
<b>ID:</b> FR23	<b>Title:</b> Provide contact details for sports club's	<b>Priority:</b> Must have

<b>Description:</b>	The application should display sports club contact details for the user to see including email address and mobile phone number
<b>Justification:</b>	Gathered from interview 2 and interview 3
<b>Location:</b>	On Find Club Location Sub-Page

<b>Functional Requirement 24</b>		
<b>ID:</b> FR24	<b>Title:</b> Application should have soccer, Gaelic football and hurling as options	<b>Priority:</b> Must have
<b>Description:</b>	The user should be able to select from the select category dropdown, options for soccer, Gaelic football and hurling	
<b>Justification:</b>	Gathered from survey	
<b>Location:</b>	Within select sport category dropdown on Home Page	

<b>Functional Requirement 25</b>		
<b>ID:</b> FR25	<b>Title:</b> A favourites button	<b>Priority:</b> Should have
<b>Description:</b>	The user should be able to save tasks as favourites by selecting a love heart through the settings option	
<b>Justification:</b>	Gathered from document analysis	
<b>Location:</b>	Within clicking settings icon	

<b>Functional Requirement 26</b>		
<b>ID:</b> FR26	<b>Title:</b> Distance to location displayed on the map	<b>Priority:</b> Should have
<b>Description:</b>	The estimated distance in kilometres should be displayed in the geo-location feature to provide the user with an estimated distance to their desired destination from their current location	
<b>Justification:</b>	Gathered from focus group	
<b>Location:</b>	In geo-location feature on Find Club Location Sub-Page	

<b>Functional Requirement 27</b>		
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<b>ID:</b> FR27	<b>Title:</b> A feature for users to leave a feedback review	<b>Priority:</b> Should Have
<b>Description:</b>	The user should be able to type and post a review about the selected sports club	
<b>Justification:</b>	Gathered from interview 1	
<b>Location:</b>	On Communication Page	

<b>Functional Requirement 28</b>		
<b>ID:</b> FR28	<b>Title:</b> Access to online tutorials from YouTube	<b>Priority:</b> Should Have
<b>Description:</b>	The user should be able to click a YouTube link to play a tutorial video on the application	
<b>Justification:</b>	Gathered from interview 1	
<b>Location:</b>	On Information Page	

<b>Functional Requirement 29</b>		
<b>ID:</b> FR29	<b>Title:</b> Provide information on volunteering opportunities	<b>Priority:</b> Should Have
<b>Description:</b>	The application should display information on volunteering opportunities for the user to view	
<b>Justification:</b>	Gathered form survey and interview 2	
<b>Location:</b>	On Information Page	

<b>Functional Requirement 30</b>		
<b>ID:</b> FR30	<b>Title:</b> Ability to check team availability	<b>Priority:</b> Should have
<b>Description:</b>	The user should be able to select team availability option, the current availability of the team will should then be displayed to the user to view	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	Within Team Profile section	

<b>Functional Requirement 31</b>		
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<b>ID:</b> FR31	<b>Title:</b> Ability to purchase equipment and club merchandise	<b>Priority:</b> Should have
<b>Description:</b>	The user should be able to enter credit or debit card details into the data fields to purchase the selected merchandise or equipment they want from the club merchandise and equipment section on the information page	
<b>Justification:</b>	Gathered from brainstorming session and survey	
<b>Location:</b>	Within Club Merchandise on Information Page	

<b>Functional Requirement 32</b>		
<b>ID:</b> FR32	<b>Title:</b> Plan carpooling schedules	<b>Priority:</b> Should have
<b>Description:</b>	The user should be able to type and post comments about carpooling within the parent discussion forum	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	In parent discussion forum on Communication Page	

<b>Functional Requirement 33</b>		
<b>ID:</b> FR33	<b>Title:</b> Provide information on the cost of membership	<b>Priority:</b> Should have
<b>Description:</b>	The application should display information on the cost of membership for the user to view	
<b>Justification:</b>	Gathered from brainstorming session and survey	
<b>Location:</b>	On Information Page	

<b>Functional Requirement 34</b>		
<b>ID:</b> FR34	<b>Title:</b> Provide protected disclosure to report issues	<b>Priority:</b> Should have
<b>Description:</b>	The user should be able to anonymously report issues to the sports club by typing their issue	
<b>Justification:</b>	Gathered from survey	
<b>Location:</b>	On communication Page	

<b>Functional Requirement 35</b>		
<b>ID:</b> FR35	<b>Title:</b> Provide information on the types of membership	<b>Priority:</b> Should Have
<b>Description:</b>	The application should display information on the different types of membership available for the user to view	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	On Information Page	

<b>Functional Requirement 36</b>		
<b>ID:</b> FR36	<b>Title:</b> Provide information on team history	<b>Priority:</b> Should have
<b>Description:</b>	The application should display information on team history on the team's profile page for the user to view	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	Within Team Profile section	

<b>Functional Requirement 37</b>		
<b>ID:</b> FR37	<b>Title:</b> Provide guidelines for parent behaviour at sporting activities	<b>Priority:</b> Should have
<b>Description:</b>	The application should display guidelines for parent behaviour at sporting activities for the user to view	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	On Information Page	

<b>Functional Requirement 38</b>		
<b>ID:</b> FR38	<b>Title:</b> Provide information on major sporting events	<b>Priority:</b> Should have
<b>Description:</b>	The application should display information on major sporting events for the user to view	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	On Information Page	

## 5.2.2 User Class Two – Administrator Sports Club Representative

Functional Requirement 39		
<b>ID:</b> FR39	<b>Title:</b> Update match results	<b>Priority:</b> Must have
<b>Description:</b>	The administrator should be able to edit and update match results for other users to view and access	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	On Home Page and through notifications	

Functional Requirement 40		
<b>ID:</b> FR40	<b>Title:</b> Update training times	<b>Priority:</b> Must have
<b>Description:</b>	The administrator should be able to edit and update training times for other users to view and access	
<b>Justification:</b>	Gathered from brainstorming session and interview 2	
<b>Location:</b>	On Home Page and through notifications	

Functional Requirement 41		
<b>ID:</b> FR41	<b>Title:</b> Profiles for sports club's	<b>Priority:</b> Must have
<b>Description:</b>	The administrator should be able to update and edit the sports club's profile including club contact details for other users to view and access	
<b>Justification:</b>	Gathered from brainstorming session	
<b>Location:</b>	On Home Page	

Functional Requirement 42		
<b>ID:</b> FR42	<b>Title:</b> Profiles for individual teams	<b>Priority:</b> Should have
<b>Description:</b>	The administrator should be able to update and edit the individual teams' profiles including team availability and age for other users to view and access	
<b>Justification:</b>	Gathered from interview 1	

<b>Location:</b>	On Home Page
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<b>Functional Requirement 43</b>		
<b>ID:</b> FR43	<b>Title:</b> Provide fixture list	<b>Priority:</b> Should have
<b>Description:</b>	The administrator should be able to update and edit fixture lists for other users to view and access	
<b>Justification:</b>	Gathered from interview 1	
<b>Location:</b>	On Home Page and through notifications	

<b>Functional Requirement 44</b>		
<b>ID:</b> FR44	<b>Title:</b> Provide Trial Dates	<b>Priority:</b> Should have
<b>Description:</b>	The administrator should be able to update and edit team trial dates for other users to view and access	
<b>Justification:</b>	Gathered from interview 1	
<b>Location:</b>	On Home Page and through notifications	

<b>Functional Requirement 45</b>		
<b>ID:</b> FR45	<b>Title:</b> Provide Match Reports	<b>Priority:</b> Should have
<b>Description:</b>	The administrator should be able to update and edit match reports for other users to view and access	
<b>Justification:</b>	Gathered from interview 1	
<b>Location:</b>	On Home Page and through notifications	

<b>Functional Requirement 46</b>		
<b>ID:</b> FR46	<b>Title:</b> Profiles for sports managers	<b>Priority:</b> Could have
<b>Description:</b>	The administrator should be able to update and edit manager profiles including experience and qualifications for other users to view and access	
<b>Justification:</b>	Gathered from interview 1	
<b>Location:</b>	On Home Page	

Functional Requirement 47		
<b>ID:</b> FR47	<b>Title:</b> Provide player statistics	<b>Priority:</b> Could have
<b>Description:</b>	The administrator should be able to update and edit player statistics including games played and goals scored	
<b>Justification:</b>	Gathered from interview 1	
<b>Location:</b>	Within Team Profile	

Functional Requirement 48		
<b>ID:</b> FR48	<b>Title:</b> Ability to assign sporting homework	<b>Priority:</b> Could have
<b>Description:</b>	The administrator should be able to assign sporting homework to a user that is in their own sports club	
<b>Justification:</b>	Gathered from interview 1	
<b>Location:</b>	On Home Page and through notifications	

Functional Requirement 49		
<b>ID:</b> FR49	<b>Title:</b> An analytics tool for clubs to analyse their user's activity	<b>Priority:</b> Could have
<b>Description:</b>	The administrator should be able to analyse the activity on the application of users associated with their own club	
<b>Justification:</b>	Gathered from interview 1	
<b>Location:</b>	On Home Page	

### 5.3 Non-Functional Requirements

#### 5.3.1 Performance requirements

Non-Functional Requirement 1	
<b>Identification Code:</b>	NF1
<b>Title:</b>	Geolocation API

<b>Description:</b>	The location of the user will be used to provide distance and directions to their nearest sports club, an estimated distance in kilometres will be displayed for the user to view
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<b>Non-Functional Requirement 2</b>	
<b>Identification Code:</b>	NF2
<b>Title:</b>	User-friendly GUI
<b>Description:</b>	The application should be easy to navigate through. Features and functionality kept to minimum only displaying the necessities to perform the task required

<b>Non-Functional Requirement 3</b>	
<b>Identification Code:</b>	NF3
<b>Title:</b>	Verification email
<b>Description:</b>	Verification codes should be sent to the provided email by the user within one minute after they register an account

<b>Non-Functional Requirement 4</b>	
<b>Identification Code:</b>	NF4
<b>Title:</b>	User Login
<b>Description:</b>	When the user inputs their username and password for login they should be notified within 10 seconds if the login was successful and they should have access to their account or they should receive an error message for incorrect credentials and should be required to login again.

### 5.3.2 Availability requirements

<b>Non-Functional Requirement 5</b>	
<b>Identification Code:</b>	NF5

<b>Title:</b>	Application should be free to download
<b>Description:</b>	It was suggested by a stakeholder in an interview that the application should be free to download to entice more customers, the application should not cost to download from the App or Google Play Store

<b>Non-Functional Requirement 6</b>	
<b>Identification Code:</b>	NF6
<b>Title:</b>	YouTube videos
<b>Description:</b>	Application should be able to load and play video tutorials from YouTube

### 5.3.3 Usability requirements

<b>Non-Functional Requirement 7</b>	
<b>Identification Code:</b>	NF7
<b>Title:</b>	Application should run on mobile devices
<b>Description:</b>	Application should function on mobile devices including IOS and android the application should operate as up until the version 5 iPhone

<b>Non-Functional Requirement 8</b>	
<b>Identification Code:</b>	NF8
<b>Title:</b>	Minimalistic Graphical User Interface
<b>Description:</b>	Application should only implement the wanted features of the stakeholders to avoid the application becoming overcrowded with unneeded features and functions

### 5.3.4 Security Requirements

<b>Non-Functional Requirement 9</b>	
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<b>Identification Code:</b>	NF9
<b>Title:</b>	Password Constraints
<b>Description:</b>	The password should be 8-25 characters long containing one number, one capital letter and one unique character

<b>Non-Functional Requirement 10</b>	
<b>Identification Code:</b>	NF10
<b>Title:</b>	User Account Lock
<b>Description:</b>	If the user enters the incorrect password three times in sequence they should be locked out of their account until they verify their details again through the linked email address with their account

<b>Non-Functional Requirement 11</b>	
<b>Identification Code:</b>	NF11
<b>Title:</b>	Hashing passwords
<b>Description:</b>	Passwords should be hashed when they are entered into the data fields by the user

<b>Non-Functional Requirement 12</b>	
<b>Identification Code:</b>	NF12
<b>Title:</b>	Password Expiry
<b>Description:</b>	The user should be required to update their passwords every 90 days

<b>Non-Functional Requirement 13</b>	
<b>Identification Code:</b>	NF13
<b>Title:</b>	Inform the user

<b>Description:</b>	The user should be informed within 72 hours if their personal data is breached to comply with General Data Protection Regulations
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## 6. Evaluation

I have a sense of accomplishment after completing this document and project, at the beginning of the year it seemed like a miraculous task but slowly piece by piece progress was made. I am happy with the work I completed with the project as it was not an easy task to balance with a number of other module exams and assignments. I believe the end goal of producing a high standard IEEE requirements specification document has been achieved.

I feel I have learned a huge amount from the project which I hope will be the first of many projects in the future, the project gave me a great understanding of what it really takes to be a business analyst. I bettered my communication and personal skills through conducting a brainstorming session, focus group and a number of interviews. I improved my analytical skills through continuous scrutiny of the requirements I gathered.

The techniques I feel that were most beneficial to the project were the personal requirements elicitation techniques as it was in a personal setting with instant answers and there were no ambiguities as they could be clarified instantly. The documentation analysis and survey did gather requirements but it required working through a lot of data and they were heavily time consuming. Developing the prototypes increased my technical skills through using Balsamiq and I enjoyed the creativity involved with this technique.

If I could change anything from the project, I would have interviewed a software developer as I feel they could have provided more technical requirements with complete explanation, however I am overall satisfied with the efforts I made.

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## 8. Appendix

### 8.2 Project Proposal

#### *Objectives*

The objective of my final year project is to form a comprehensive requirements specification document, the requirements elicited will be based on my application idea. The document will be to IEEE standards and will be detailed to a level that a developer can easily carry out the creation if I wish to pursue. The base for my requirements elicitation techniques will be derived from BABOK, I will use multiple techniques to interact with my stakeholders for example brainstorming session, interviews, surveys and prototypes. At the end of the project a number of requirements will be generated and prioritized by using techniques such as MoSCoW Analysis. Through the findings of requirements, I will be able to better impact the design of the application, its functionality and its security. There is a number of milestones that are associated with the project and my objective is to achieve them in a timely manner, to do this I have created a project plan which will enable me to stay on course throughout the project's life cycle. Further research will be carried out via internet and books to form the best understanding of my ability for the subject of my application which is sports. BABOK and other relevant material will be studied thoroughly to ensure all requirements techniques, tasks and knowledge is to the highest standard and make my understanding of being a business analyst educated at the end of the project.

## *Background*

As the final year project is very time consuming and spans across both semesters, I wanted to ensure I decided on an idea that I have interest in as more motivation and energy could be used in contrast to something I dislike. I have always been passionate about sport and seen this topic as the perfect opportunity to formulate an idea for my project. When I was younger there was not a day that went by were a football wasn't kicked, in the age of technology sport has been affected with younger kids using their time on social media or video games rather than staying active. With lack of exercise and the negatives that come with technology making it a harsh environment sometimes for the younger age through online bullying for example I think it is vital to get kids physically active again and meet new friends. My application idea is for sports teams to be located near where the child lives, and they can find team news, training times etc. the child's parent will be the user of the app and can sign the child up for the team the child chooses. The app will also have a login for a member of the local club's manager for example to update the teams new and other relative information. The app will potentially boost sign ups and increase the financial health of clubs enabling them to progress and improve.

## *Technical Approach*

Firstly the first piece of technical software I have used is Microsoft Project Plan to create a Gantt Chart for my project milestones and deadlines which will support me staying on course for the project.

The technical elements of my project will include the use of Google Forms to create my survey which will be communicated to users via the channels of social media and email. The reasoning for choosing Google forms over competitors such as Survey Monkey is that I have previous experience using this tool and that it is free to use as Survey Monkey will cost a subscription for the volume of survey questions I require. Once responses are received, they will be technically analysed on Google Forms.

A mobile phone will be used as a technology device to record my interviews with the permission of the interviewee and it will be used to capture images of my results from the brainstorming sessions.

Prototyping will be used in my project, I will create a wireframe mock-up on Balsamiq based on the requirements derived from my brainstorming, survey and interviews. I will then use the prototype as part of the Mid-Point presentation to

give an early visual representation of what the finished product may look like also it will be used in a workshop to get further feedback and input on the design layout and features.

After all the tasks of my project have been carried out, I will then create a WordPress website to assist me in displaying my application idea at the project showcase. To ensure I am able to use WordPress to its full capability I will attend a seminar with Sam Cogan on WordPress in combination with research and study of how to use.

### *Special Resources Required*

Microsoft project plan will be used to create my project plan, I will carry out investigation into how to use this software to its full capability to develop my project plan. BABOK will be used to assist me throughout the course of the project specifically in the elicitation of the requirements and help to keep in line with best practice business analysis methodologies and approaches. WordPress will be used to develop my app for the project showcase, I have minimum experience with this so study will need to be carried out in order to create my app. IEEE requirements document template will assist me in ensuring that I gather requirements in line with this standard.

### *Project Plan*

I created a project plan on Microsoft project to remain on track and better my time management for the project. Up to now I have completed my tasks but a roadblock in the form of ethics approval delayed me progressing further with my requirements analysis.

	✈	Final Year Project	180 days	Mon 17/09/18	Fri 24/05/19	
✓	✈	Project Initiation	7 days	Tue 18/09/18	Wed 26/09/18	
✓	📁	Look at project brief	2 days	Tue 18/09/18	Wed 19/09/18	
✓	📁	Generate project idea	3 days	Thu 20/09/18	Mon 24/09/18	3
✓	📁	Decide on project idea	2 days	Tue 25/09/18	Wed 26/09/18	4
	✈	Project Planning	63 days	Thu 27/09/18	Sun 23/12/18	2
✓	📁	Record project pitch video	1 day	Thu 27/09/18	Thu 27/09/18	
✓	✈	Upload project pitch video	1 day	Sun 07/10/18	Sun 07/10/18	7
✓	✈	Attend ethics seminar	1 day	Tue 09/10/18	Tue 09/10/18	8
✓	✈	Conduct research for project proposal	3 days	Mon 15/10/18	Wed 17/10/18	9
✓	✈	Upload ethics document	1 day	Thu 18/10/18	Thu 18/10/18	10
✓	✈	Complete project proposal	6 days	Fri 19/10/18	Fri 26/10/18	11
✓	✈	Upload Project Proposal	1 day	Mon 29/10/18	Mon 29/10/18	12
✓	✈	Decide on requirements elicitation techniques	3 days	Mon 12/11/18	Wed 14/11/18	13
✓	✈	Formulate sample survey and interview questions	2 days	Thu 15/11/18	Fri 16/11/18	14
✓	✈	Compose requirements specification document	2 days	Mon 19/11/18	Tue 20/11/18	15

✓	✈	Upload requirements specification document	1 day	Sun 25/11/18	Sun 25/11/18	16
	✈	Create prototype for mid-point	3 days	Wed 12/12/18	Fri 14/12/18	17
	✈	Create mid-point presentation	2 days	Fri 14/12/18	Sun 16/12/18	18
	✈	Mid-point and prototype presentation	5 days	Mon 17/12/18	Fri 21/12/18	19

### Technical Details

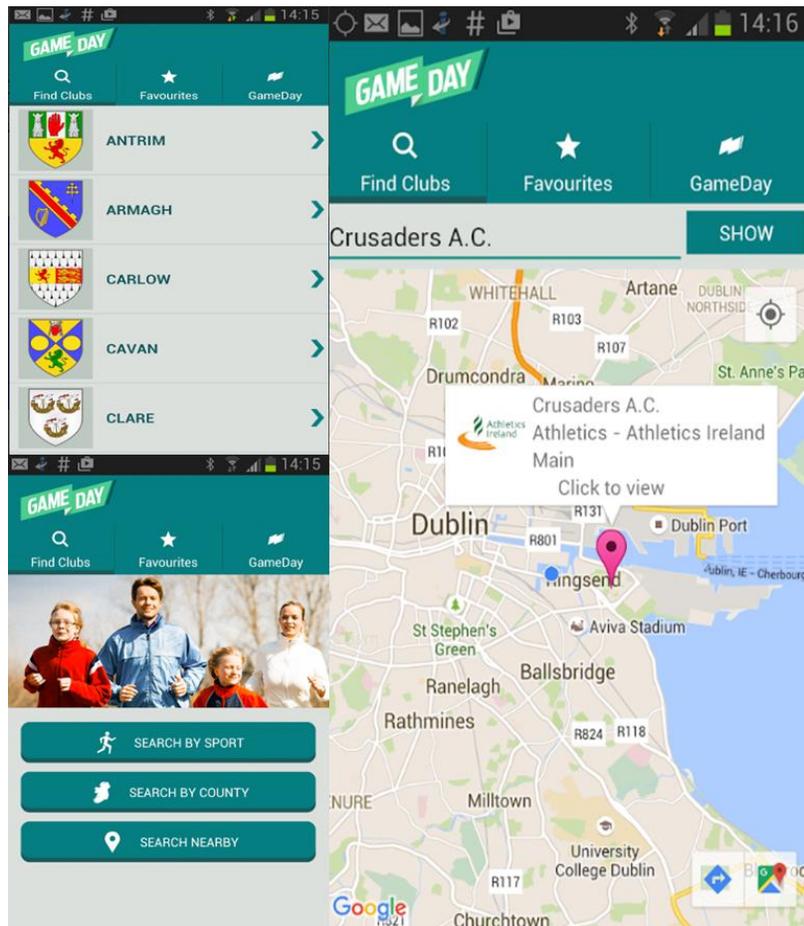
I will use Balsamiq to create the wireframe for my technical prototype for my mid-point presentation, this will give an understanding of what the end product of my app will look like and I will be able to obtain feedback to improve this. WordPress will be used in the later stages of the project to develop the app and be used for presentation and visual effect in the project showcase.

### Evaluation

Overall the project involves a large workload, I will try my best to meet the project milestones and follow the plan. There will be issues forthcoming that I cannot anticipate now but may skew my timeline but with continuous work and meeting with my supervisor I feel I can achieve the end goal of this project which is to deliver a detailed requirements document. I will now put my focus on the mid-point presentation and prepare accordingly.

## Competitors

A competitor for my project idea will come from an application called GameDay which is similar in that it allows local sports clubs to be found by the public. The application “is the brainchild of four-time All-Star Dublin footballer Sinead Goldrick”. (Arnold, 2018) The application is not specific to youth level, it does not cover some of the most popular sports in Ireland such as soccer, Gaelic football and hurling. As GameDay was launched a short period of two years ago it has not grown dramatically on the Google Play Store it has one hundred plus installs (Play.google.com, 2018) which is a low figure and enables my application to still make progress over it. Sample images from this competitor’s application are included below.



Slight competition will come from the traditional Golden Pages their website has a list of local clubs and along with the name, the address and phone number to contact

the clubs. You can also use a redirected link to navigate to the club's website or get directions to the location. My application will offer much more information about the sports clubs for example the number of available places, team news and the ability of signing up.

There is competition coming on an individual sport basis for example Soccer Ireland has a website that has a breakdown of clubs by counties but it does not state if it facilitates youth teams and has outdated or incomplete data which is of low quality. In contrast to my application it lacks information, is outdated and not a user-friendly website.

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Play.google.com. (2018). [online] Available at: <https://play.google.com/store/apps/details?id=ie.return2sender.gameday> [Accessed 13 Dec. 2018].

### 8.3 Consent Form

I request your consent for participation in a study about sports for children. Please be aware that no personal data will be gathered and you will remain anonymous. This consent form asks you to allow me to document your feedback to enhance the requirements for the application.

Participation in this study is completely voluntary. If you decide not to participate there will not be any negative consequences. Please be aware that if you decide to participate, you may stop participating at any time and you may decide not to answer any specific question.

I will maintain the confidentiality of the research records or data, and all data will be destroyed in line with GDPR regulations.

By submitting this form you are indicating that you have read the description of the study, are over the age of 18, and that you agree to the terms as described.

If you have any questions, or would like a copy of this consent letter, please contact me at x15515393@student.ncirl.ie.

Thank you in advance for your participation!

Jordan

## 8.4 Monthly Journals

### *September*

After completing work placement I was refreshed to be back in college and completing my final year of the Technology Management course, from the first day it was quickly setting in what was to be expected in the final year. The first semester will consist of five modules that will require significant time for exams and assignments along with managing my final year project.

Eamon Nolan conducted an introduction to project with a seminar and the first task for the project was to brainstorm a project idea. After coming up with a couple of potential ideas and researching them I was happy to finalise on the selected idea that interested me most. Once I had finalised my idea, I began to put together a project plan with the first deliverable a project pitch video to obtain approval, which I had to plan and prepare for.

### *October*

October was the start of really getting to grips with college, the project pitch video was due and thankfully my idea was approved I was thrilled with this news as it reduced stress as I was trying to balance multiple deliverable due dates in other subjects.

For the project supervisor I was assigned to Eugene O'Loughlin I was happy to hear this as Eugene is heavily involved with the BSHTM course. I liked his way of teaching from the modules I had him and knew he had good experience with past projects.

The next deliverables for October were Project Ethics document and the project proposal document. I attended an Ethics Compliance seminar with Cristine Muntean, this gave me an understanding of what was to be expected in the ethics approval form which I uploaded on time and awaited approval.

I worked on the project proposal document which included the objective and background for the project along with a project plan and the technical approach to

complete the project. It was time consuming but I managed to upload the document on time and tick off another deliverable as complete.

### *November*

I received feedback from the ethics board which was that my ethics approval request had not been approved, I tackled the areas that needed improvement and re submitted on the 18<sup>th</sup>. The project deliverable for this month was the requirements specification document. Pressure was beginning to mount with more and more deadlines approaching from all modules. Thankfully I uploaded the requirements specification document.

In this month I also met with my supervisor Eugene to discuss my project progression. I had yet to conduct any of my elicitation techniques as I had not received ethics approval until the 28<sup>th</sup> of November. I had started to draft my survey questions and plan for my brainstorming session to ensure I prepared as soon as the approval of ethics came through. By the months end I had received approval from the ethics board which allowed me to carry out a brainstorming session.

### *December*

A month of mayhem, pressure was at a maximum. I was completing final assignments while attending crucial class lectures to gather as much revision and exam preparation as possible. I met with Eugene to discuss what was expected at the mid-point presentation and I was happy with his advice, I also reviewed my survey questions with him. Before the mid-point I managed to conduct a brainstorming session, it was a boost to have a requirements elicitation technique complete after the ethics delay. The day of the mid-point presentation I was nervous but felt that I had prepared enough and put sufficient time and effort in to really do well in the presentation. Eugene and Dermot Killen were assigned to my presentation, I was happy with my performance at the presentation and the mark I received reflected this. I also gathered some valuable feedback from Dermot and Eugene for improvement going forward with the project. I went into the Christmas period happy with how the project had gone so far.

### *January*

I had five exams to prepare for which was stressful and required a lot of time which did not leave much room for work on the project. The exams came thick and fast but I felt I did well in them. After the exams I was burned out and took some time

off for the week to reenergise before putting work in for the final few months of my college time. Unfortunately I did not meet with Eugene in this month.

### *February*

I met with Eugene early in this month as I wanted to get back on track for the project, I discussed what I planned to achieve for the month. The project really made headway in this month I conducted two interviews which were hugely beneficial but quite difficult to organise due to schedule conflicts. Requirements were starting to build and I began to distribute my survey to gather more requirements. I hoped I would receive enough responses from the survey, social media really helped get responses for the survey.

### *March*

At the beginning of the month I conducted a third interview, I was becoming more confident carrying out the interviews with experience gained from the previous two. Survey responses gathered and I received 101 responses all together. This allowed for a sufficient sample size to analyse responses. I carried out documentation analysis after the survey and a third interview, I tried to make as much progress in this month as possible as I knew my time would be once again focused on exams in April. I developed a prototype based on requirements from the elicitation techniques I carried out, I demonstrated the prototype at a focus group to gather feedback from stakeholders. After receiving input from the focus group I developed an improved prototype. I didn't meet with Eugene this month due to been extremely busy and it was a regret of mine.

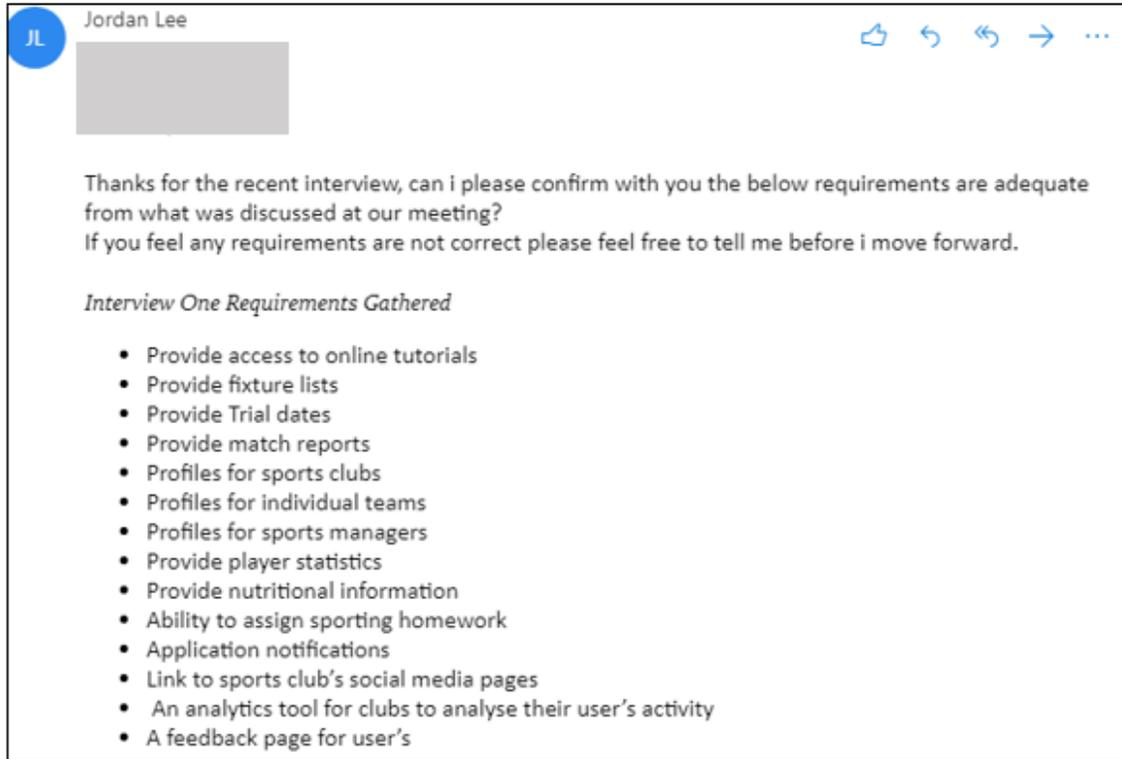
### *April*

My time once again became focused on exams, it was surreal to be completing my final exams after four years at NCI. Project time was minimal while I revised for the two exams as I wanted to finish on a high with good marks in both modules. Once the exams ended, I returned to the project document for final touches and fine combing. The project poster and website will be finalised by the start of May along with the final document and that will conclude my college work before finishing up with the final presentation and showcase.

## 8.5 Requirements Validation

### *Interview One Validation*

Email to interviewee one



The screenshot shows an email interface. At the top left is a blue circular profile picture with the initials 'JL' and the name 'Jordan Lee'. To the right of the name is a grey rectangular redaction box. In the top right corner, there are icons for thumbs up, reply, reply all, forward, and a three-dot menu. The main body of the email contains the following text:

Thanks for the recent interview, can i please confirm with you the below requirements are adequate from what was discussed at our meeting?  
If you feel any requirements are not correct please feel free to tell me before i move forward.

*Interview One Requirements Gathered*

- Provide access to online tutorials
- Provide fixture lists
- Provide Trial dates
- Provide match reports
- Profiles for sports clubs
- Profiles for individual teams
- Profiles for sports managers
- Provide player statistics
- Provide nutritional information
- Ability to assign sporting homework
- Application notifications
- Link to sports club's social media pages
- An analytics tool for clubs to analyse their user's activity
- A feedback page for user's

Email reply from interviewee one



The screenshot shows an email reply. At the top left, there is a grey rectangular redaction box followed by the date and time '019 12:10'. In the top right corner, there is a three-dot menu icon. The main body of the email contains the following text:

Hi Jordan

No problem at all the pleasure was all mine. I hope you manage to complete your idea after college and ill get the chance to use it.

I read over your requirements and they are all there you are not missing any from my memory. I hoped my interview helped you with your project.

Any thing else you need from me just get in touch.

Regards

At the bottom left, there is a grey rectangular redaction box and a three-dot menu icon.

## *Interview Two Validation*

Email to interviewee two

Thanks for the recent interview, can i please confirm with you the below requirements are adequate from what was discussed at our meeting?  
If you feel any requirements are not correct please feel free to tell me before i move forward.

*Requirements Gathered*

- Provide contact details for sports clubs
- Provide information on sports club's camps
- Ability to update training times
- Ability to find volunteering opportunities
- Security protection for user data
- Free application to download

Thanks a lot,

Jordan

Email reply from interviewee two

Hi Jordan,

No problem - it was great chatting to you

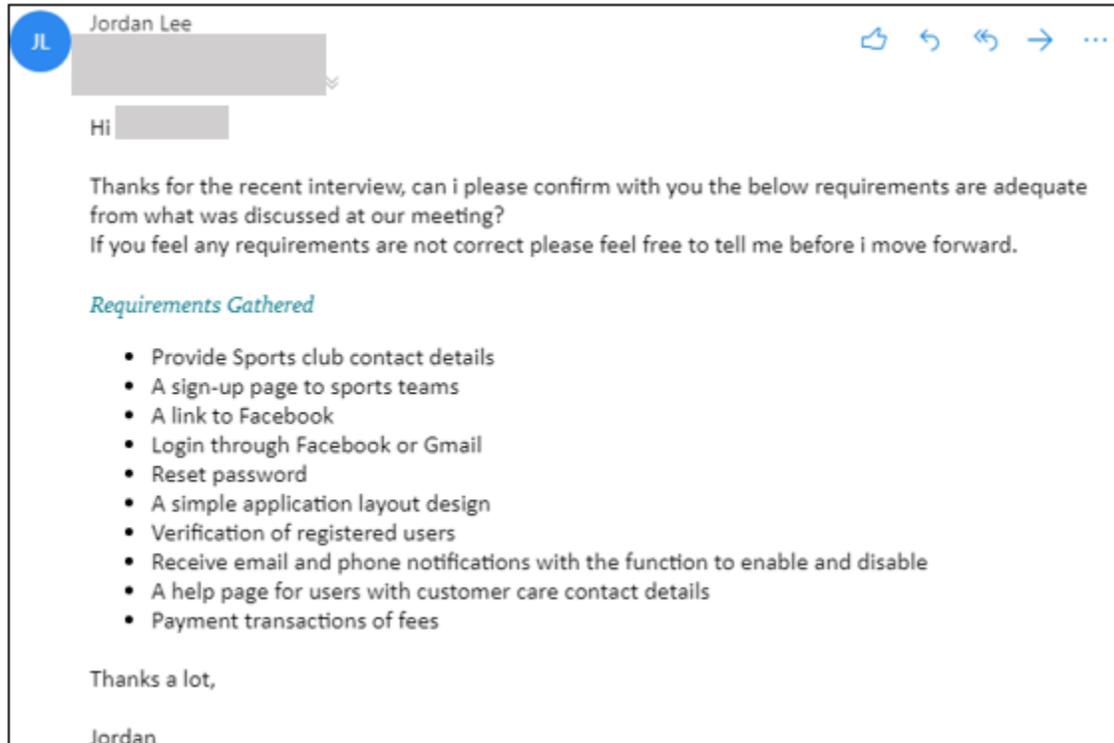
Yes those requirements sound correct and I have no problem confirming

Thanks.

...

## Interview Three Validation

Email to interviewee three



Email reply from interviewee three



## 8.6 Project Poster



National  
College of  
Ireland

# Supporting Sporting Parents

BSc (Hons) in Technology Management



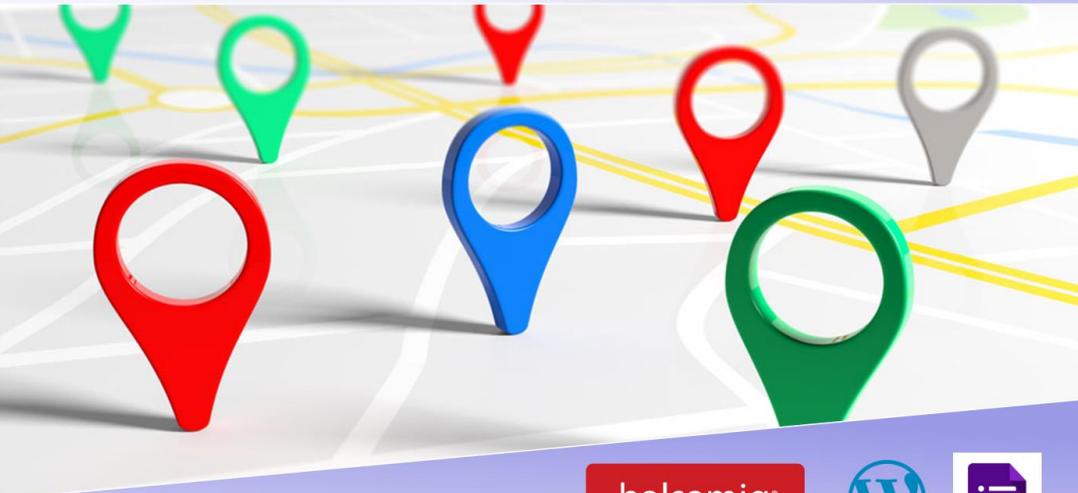
### What

Supporting Sporting Parents is a mobile application for parents to locate a variety of local sports teams and clubs for their children near to their residence, sign-up will be available along with a host of other features and functions to assist busy parents in the management of their children's sporting activities.



### Why

It will bring sports club's into the digital era and provide convenience and accessibility to parents. The overall goal of the application is to boost participation figures in sports for a healthier future.









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