

# UniTravel App

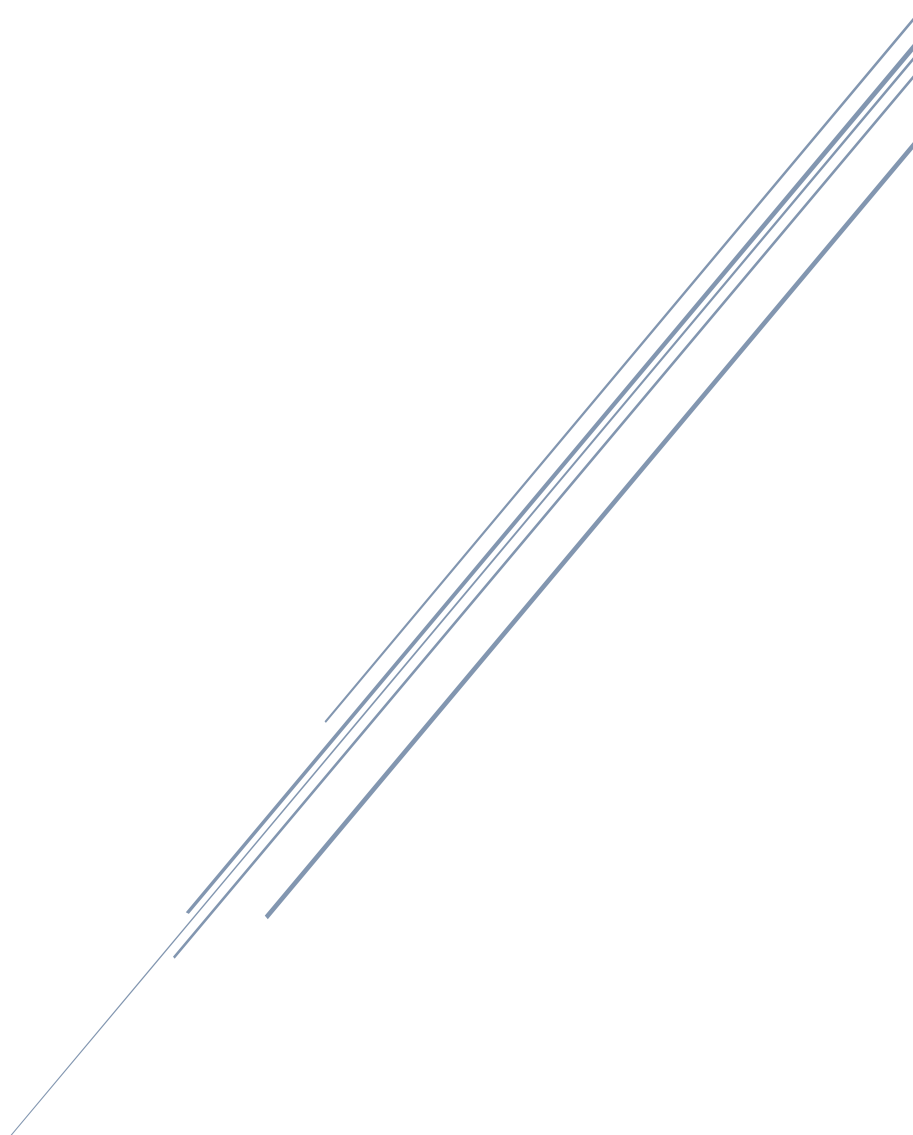
**Student Name:** Greg Kavanagh

**Student Number:** 13440288

**Email:** [x13440288@student.ncirl.ie](mailto:x13440288@student.ncirl.ie)

**Course Name:** BSc in Technology Management

**Project Supervisor:** Dermot Killen



## **Declaration Cover Sheet for BSHTM 4 Project Submission**

### **Section 1: Student to complete**

<b>Name:</b>  Greg Kavanagh
<b>Student ID:</b>  X13440288
<b>Supervisor:</b>  Dermot Killen

### **Section 2: Confirmation of Authorship**

The Acceptance of your work is subject to your signature on the following Declaration:

I can 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 this assessment is entirely my own work.

Signature: Greg Kavanagh

Date: 11th May 2018.

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 you failing the module and possibly to you being suspended or expelled from college.

### **What constitutes plagiarism or cheating?**

The following is extracted from the colleges formal statement on plagiarism as quoted in the Student Handbooks. References to “assignments” should be taken to include any piece of work submitted for assessment.

Paraphrasing refers to taking the ideas, works or work of another, putting it into your own words and then crediting the source. This is acceptable academic practise 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 another.

### **Penalties for Plagiarism**

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.
- The other examinations sat by the same student at the same sitting be declared void.

Further penalties are also possible including:

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

## Contents

1)	6
2) Requirements Elicitation & Analysis Planning	7
2.1. Introduction	7
2.2 Business Need	8
2.3 Business Case	8
2.4 Stakeholder List	9
2.5 Power Influence Grid	10
2.6 Requirement Elicitation Techniques	11
2.6.1 Brainstorming	11
2.6.2 Survey	12
2.6.3 Interview	15
2.6.4 Prototyping	18
2.6.5 MoSCoW Analysis:	19
2.6.6 Requirements Workshop Process	26
2.6.7 Interface Analysis	28
3. Requirements Elicitation Techniques Results and Analysis	29
3.1 Survey Screen shots and results:	30
3.2 Brainstorming Results	45
3.3 Interviews Results	47
3.4 Interface Analysis and Results	55
3.5 Prototypes Version one and two	57
3.5.1 Prototype Version One: Report	63
3.5.2 Prototype Version two	63
3.5.3 Prototype 2 Conclusion- Report	76
3.6 Requirements workshop	77
3.7 Interface Analysis	77
4. IEEE APP REQUIREMENTS SPECIFICATION:	79
4.1 Functional Requirements	80
4.1.1 User Class one: User	80
4.1.2 User Class Two- Administrator-LINK UP- Developer Interview	87
4.2 Non-Functional Requirements	92
4.2.1 Usability Requirements	92
4.2.2 Scalability Requirements	94

4.2.3 Security Requirements:	95
5. Appendices	98
5.1 Project Proposal:	98
5.1.2 Objectives	98
5.1.3 Project Plan	99
5.1.4 Technical Approach-	100
5.1.5 Resources Required-	100
5.1.6 Technical Details	101
5.1.7 Evaluation	101
5.1.8 Background for App	102
5.2 Reflective Journals:	103
5.2.1 Reflective Journal for September	103
5.2.2 Reflective Journal for October	104
5.2.3 Reflective Journal for November	105
5.2.4 Reflective Journal for December	106
5.2.5 Reflective Journal for January	107
5.2.6 Reflective Journal for February	107
5.2.7 Reflective Journal for March	108
5.2.8 Reflective Journal for April	109
5.3 Validation Email:	110
5.4 Bibliography:	111

## 1) Executive Summary:

UniTravel is an application that will allow users to search for accommodation, a wide variety of activities and a range of other things to do in their area or abroad.

The idea behind the thought of this project was chosen after my own previous experiences of trying to organise and book holidays during my summer months as a student. A lot of student do not realise that they can avail of student discounts while abroad, after doing extensive research of the market there was not application out there specifically tailored for students. While gathering research about the market, I realised that another huge factor would be student accommodation, many students will stay in hostels or rent out apartments. After researching the travel market there was no website or application out there for students offering student rates or offering student friendly accommodation. so I decided to combine the two ideas into a single app that students would use.

The project involved using a number of elicitation techniques which then needed to be documented and then analysed, these would be then used to create a detailed requirements specification document. These techniques involved a brainstorming session, a survey, a series of interviews, a requirements workshop, two prototypes and an interface analysis. A list of project stakeholders was gathered at the start of the project, this was then followed up with determining each stakeholders power and interest in the project. Extensive research is required for each technique, other techniques will be illustrated and documented during the progression of the report.

The elicitation results will then be recorded, documented and analysed. This will help determine what key features will be included in the app.

The results will be used to formulate a detailed IEEE Requirements Specification for the UniTravel app. The results will be used by a development team to construct the UniTravel App.

## **2) Requirements Elicitation & Analysis Planning:**

### **2.1. Introduction**

Before I begin writing up my requirement elicitations for my final year project, I have to set out a plan on how to manage each topic. This will help me focus on the task at hand and keep me on track to finish each topic, and see what resources I will need to gather the requirements elicitation. The requirements gathered will be used for the application that will be developed. It is an application that's basic requirement, will be for student to see places to stay and activities to do in a certain area when traveling.

The Application is to allow a user who is traveling to find certain places to stay, and activities to do, it will also show different activities to do that may not be available in another city or region. Looking into the market there is no application out there that is as multi-functional as this app. The aim of the app is to allow the user to gather information about a certain region they may be staying in; from things to do, places to stay and you can also leave a review for others to see. Many people have to use a number of different apps or need to check online to find hotels, hostels, places to visit and other different activities. The other benefit of the app is the ability to find areas where student discounts can be used or are available. Many students who travel over the summer especially with backpacking across Europe will be on a budget and the ability to have an app that has a list of discounts for food, culture and nightlife is very appealing to users. I feel this is a huge pull factor of the application to students.

## 2.2 Business Need

The Travel market has become a crowded market, especially with the advances in technology and certain airlines and hotels moving away from travel agents. An increase in social media activity and reviews has led to an increase in traveling and online reviews. 78% of bookings were doing using smartphones, this highlights the need for access via mobile devices. After looking online and reviewing other travel applications I saw the need for a student travel application, who may be more likely to stay in hostels and look for good deals, especially from a personal point of view from traveling an application of this nature would have been invaluable. Many people will use different apps for booking hostels and looking at activities to do or ask others who may have been to these destinations.

From a personal point of view, I feel this application would hugely benefit students when they are traveling. It can be hard to manage travel and activities to do from different websites so an App would be convenient. Discussing it with students who have been away traveling before see the benefits in having it all in one application. Having all of this information in one application can give people better control and choices when traveling. Up to 85% of people use smartphones to look up and gather information about a trip, especially students who nowadays rely on their smartphones to book and keep track of events while traveling. The Application would be ideal hostels, hotels and businesses that would offer student deals. If the Travel App is user friendly and easy to navigate it would be very popular with students.

## 2.3 Business Case

The Project is my own idea, and the idea was devised between me and my client. The business need I to provide students with an app that has a number of features that will appeal to them.

No Application on the market that allows user/students to find places to stay and things to do in a certain area while traveling.

There is definitely a risk with commencing this project. As the list of requirements are gathered there is a risk of that list continues to expand and the scope can increase greatly. Stakeholders expectations must be managed carefully.

At this time the scope is difficult to measure as I plan to add on features to the Application as it develops and matures.

Lucky the risk of deciding on a developer is lower as I am in contact with a handful I know on a personal level. I have gotten good feedback from them, and they have agreed to interviews as well. They will have no issue following my requirements and will complete the task at hand.

Communication is huge in the success of this project. Communication is required with each stakeholder; a power/ interest grid will benefit me hugely seeing how each stakeholder will be managed effectively.



## 2.4 Stakeholder List

- Project Sponsor
- Business Owner(client)
- Student travellers
- Hostel management
- Developer
- Tester
- Activities company
- Student deals website

### Stakeholder Analysis

Power	High	Project Sponsor Business Owner	Business Analyst Developers Hostel Management Student Deals Website Activities Company
	Low	Student Travellers	Tester End User
		Low	High
		Interest	

## 2.5 Power Influence Grid

I have used the Power/Influence Grid to measure how each stakeholder will need to be managed, and kept informed of how the work is coming along. Separated by power and interest. This will give me a breakdown of my stakeholder's power and influence in the application. My project sponsor will have a high power and high interest on the application. These stakeholders will need to be managed very closely and will need regular updates on the progression of the app and what goals and objectives have been completed so far. the business analyst is crucial for gathering and documenting the requirements for the app, but their ability to impact some things like design and content will be restricted. it is up to the feedback from the stakeholders that will build the requirements list, then the business analyst will act as a facilitator in this project. The Power/Interest grid will be the best way to keep all of my stakeholders in check.

## 2.6 Requirement Elicitation Techniques

### 2.6.1 Brainstorming

The aim of the brainstorming session was to gather a number of different ideas and views from several key stakeholders. It's an opportunity for everyone to voice an opinion that is present. I will list out the key functions and features the travel App will have.

#### Objectives

During the brainstorming session stakeholders will give feedback and discuss different ideas for the app. I will have a white board with the main idea for the brainstorming session. I will have an independent facilitator that will document all the different feedback on the whiteboard. I will also show the stakeholders a throw-away prototype of the how the App may look, but will take all feedback on board so improvements can be made. This will give me a better understanding, as I will not disagree with any feedback I get. I will then review all feedback we have been given with the facilitator.

**Participants:**

- Client
- App developer
- Two students one who has been inter-railing in Europe before and the other student will be heading inter-railing this summer.

**Guidelines for the Brainstorming Session:**

- Please be at least 15 minutes early before to meet all of the stakeholders for the session, refreshments will be provided before a quick introduction.
- Please switch off mobile devices before the session
- Stick to the objectives of the session and don't go off track
- Please remain silent while other participants are putting forward their ideas.
- There will be a recap at the end of the session to discuss what will be next for the application
- If any participants behave in an unacceptable way they will be removed from the session by the chairperson of the session.

**Location:**

Starbucks Dawson Street.

**Date & Time of the Session**

22<sup>nd</sup> of January 2018

**Time of the Meeting:**

10.00am-12.00pm

**Brainstorming Rules:**

- 1) Participants of the brainstorming session must refrain from discussing potential app ideas with other participants prior to the meeting taking place on the ADD LOCATION
- 2) All participants should try arrive at least twenty minutes before the meeting begins to make sure the meeting starts on time and participants are not kept longer than the stated time.
- 3) Each participant will be given a time slot during the meeting to discuss their idea or ideas.
- 4) Mobile phones must be switched off during the meeting, but tablets and laptops will be permitted for the use of note taking.
- 5) Participants should try to remain focused and respect when other participants are giving feedback and discussing their proposed idea
- 6) If the behaviour of any participants is deemed unacceptable they will be asked to leave the meeting.

- 7) If any individual is late, they shall be allocated a time slot near the end of the meeting to discuss their idea. they should only enter when the chairperson deems it acceptable.

## 2.6.2 Survey

### **Distribution Method:**

To distribute my survey, I posted it on Facebook and also emailed it to a number of individuals.

### **Survey objectives:**

I will write up a survey that I will distribute after the brainstorming techniques have been gathered. This will then help me gather more information about certain requirements from their perspectives. I aim to collect a minimum of 100 surveys. The surveys will allow me to gather a wide range of different thoughts and what users would like to see and what they would not like. My target mark is college students 18-24 years of age.

Before the launch of my survey, I sent out a sample survey with a number of potential questions that would be used on the final draft of my survey. The pilot group was kept to five people, I discussed the size of the group with my project supervisor and that number was agreed on. The pilot was a success and was very beneficial to me, I got good feedback from the pilot group and I was able to make some needed adjustments. After this I made some tweaks to the survey and then released it. Participants will be mainly students.

### **Survey Link:**

[https://docs.google.com/forms/d/1CKw7IllaybuC25uGhUsORjtB1rCFQDY2\\_yRnZhfsj-w/edit](https://docs.google.com/forms/d/1CKw7IllaybuC25uGhUsORjtB1rCFQDY2_yRnZhfsj-w/edit)

### **Survey Questions**

How would you gather information about a city or region?

- Through a friend or colleague
- Website
- Travel book
- Word of mouth

What activities would interest you while away?

- Sports
- Leisure
- Nightlife
- Food & Culture

How much would you spend on a 2-week holiday?

- €100-500
- €500-€1,000
- €1,000-€1,500
- €1,500-€2,000

How many persons would you travel with?

- Alone
- 1-3
- Group of people

Have you used student discounts/ deals while traveling?

- Yes
- No
- Not sure

Please indicate your gender.

- Male
- Female
- Other

Do you ever hear of any student Discounts/deals while traveling?

- Yes
- No
- Not sure

Which of the following devices do you own?

- iPhone
- Android
- I don't have a smartphone
- Other

How do you Plan your trip?

- By Yourself
- By travel Agent
- By Ryanair
- Booking.com

How Often would you travel?

- Once a year
- Every six months
- As many time as possible in the year
- Rarely travel

Where would you stay?

- Airbnb
- Hotel
- Hostel
- With friends

Would an application that has a list of student discounts be appealing?

- 1) Not very Appealing
- 2) Not Appealing
- 3) Maybe
- 4) Yes Appealing
- 5) Yes Very Appealing

What social media platforms would be best at making students aware of the proposed application?

- Instagram
- Facebook
- Twitter
- Snapchat
- Pinterest
- YouTube

Would a number of activities depending on how many days you are staying in a city appeal to you?

- Yes
- No
- Maybe
- Unsure

### 2.6.3 Interview

#### Overview:

Briefings will be sent to each participant prior to the date to provide an understanding about the topic and what we hope to achieve during these interviews. These are sent to ensure we get the best out of the interview and gather some good feedback for the app.

**Objective:** The interviews will be conducted with specific stakeholders; this will give different types of feedback. Interviews will be conducted with a number of stakeholders (Developer, employee of a travel website, and two students)

#### Interview One

##### Participants:

App Developer

##### Interview location:

The Interview was conducted over Skype.

##### Date of the Interview:

22<sup>nd</sup> of December 2017

##### Time of the Interview:

1.00pm-2.00pm

##### Objectives of the interview:

This interview was conducted with an app developer to gather details about the cost and development of the UniTravel app. They will give me a good understanding into how app should be designed and configured. The desired outcome of this interview is to gather as much information about what goes into developing an app, but also to gather some feedback about the idea and discuss any issues or problems he ran into previously.

I plan to conduct interviews with Developers and a student who has been traveling in the last year or so. I must take into consideration the logistics of holding these interviews. I must allocate set times and dates with each person I intend on interviewing.

##### Interview Questions(Developers)

- 1) What is your previous experiences when developing an application?
- 2) How much do you think it would cost to produce and develop this application?
- 3) Did you face any issues when developing previous applications?
- 4) How long would it take to create and develop the app?
- 5) Interview conclusion

All other questions will be noted if we move off the questions answered.

**Interview Two:****Participant:**

Student Backpacker.

**Interview Location:**

Starbucks Westmoreland Street.

**Date of the interview:**

8th February 2018

**Time of the interview:**

3.00pm-4.00pm

**Objective of the Interview:**

This interview was conducted to gather knowledge about a student who had been traveling the previous summer. This interview was used to discuss the app idea and listen to any issues they may have run into when travelling, and discuss the benefits of the app. This was another way to iron out the layout of a prototype, discussing the pros and cons of a few competitor's websites and other apps.

**Interview Questions:**

- 1) Would you see any benefit in using such an App?
- 2) Would you be ok with giving any feedback to improve the App?
- 3) Would you be interested in using this app instead of a travel website?
- 4) What sort of Layout/Design would attract you to the application and other students?
- 5) Do you think there is potential for future expansion of the UniTravel App?



**Interview Three:****Participant:**

Student going traveling over the summer.

**Interview Location:**

DIT Bolton Street

**Date of the Interview:**

24<sup>th</sup> March 2018

**Time of the Interview:**

6.30pm -8pm

**Objective of the Interview:**

The interview was designed to gather information from a student who plans to head away during the summer, going inter-railing. This was the best way at getting a better understanding of a student who will be gathering information from different websites and friends about traveling abroad.

**Interview Questions:**

- 1) Would you see any benefit in using such an App?
- 2) Would you be interested in using this app instead of a travel website?
- 3) Have you run into many issues when gathering information?
- 4) Would you like a forums or experience page to be included from previous users?
- 5) Would you be ok with giving feedback to improve the app?
- 6) Conclusion follow up

**Interview Four:****Participant:**

Employee working for a Travel website

**Interview Location:**

Conducted over Skype

**Date of the Interview:**

24<sup>th</sup> of April 2018

**Time of the Interview:**

6pm-7pm

**Objective of the Interview:**

The objective of this interview was to gain knowledge from an employee working for one of the top travel websites. The interview was used to discuss travel trends, what attracts users to their websites, competitors and the potential market for the app.

**Interview Questions:**

- 1) How long have you been working in the travel tech industry?
- 2) Discussing the Market? Any issues in the market?
- 3) How does the UniTravel App compare to Booking.com?
- 4) Events and trips?
- 5) Conclusion follow up

**2.6.4 Prototyping****Objectives of the Prototype:**

This prototype is the first graphical representation of the UniTravel App. It is mainly being developed as a progress report, and it will be used at the requirements showcase, to show the potential layout and design of the app to the stakeholders. The needs of each stakeholder need will be displayed in the prototype. The results of the brainstorming session, the survey and the interviews will be used to develop the prototype of the UniTravel app. During the Requirements showcase, the stakeholders will be asked to critique the first prototype so any needed changes can be

made. They could ask for new features to be added or for the design and layout to be tweaked or changed completely. During the requirements workshop they will also go through a list of competitor's apps and website to see what can be utilised for the next prototype of the UniTravel App. A second version of the prototype will be created after the requirement workshop based on the feedback from the various stakeholders.

**Resources Required:**

- 1) Apple MacBook laptop with Microsoft PowerPoint.
- 2) Balsamic software will be used to create the prototypes.
- 3) The results from the brainstorming session, the interviews and the survey will be used to create the first prototype of the UniTravel App.

**Development Checklist:**

- Integrate the requirements based on the results of the survey conducted.
- Understand the views and feedback given by the stakeholders during the brainstorming session
- Review the interview results and insert the features into the prototype.
- Then implement any necessary changes after the requirements workshop based on the feedback from the stakeholders.

**Participants:**

- 1) The Business Analyst- they will develop the prototype.
- 2) App Developers
- 3) Backpacker
- 4) Student planning to head away during the summer.
- 5) Marketing team
- 6) Development team

**Prototype Due Date:**

26<sup>th</sup> of February 2018

**Prototype Completion Date:**

25<sup>th</sup> of February 2018

### 2.6.5 MoSCoW Analysis:

This technique will be used to list out and prioritize requirements into certain categories. This is done so all stakeholders will have the same understanding of the App and what direction it is going in. The categories of prioritisation in this analysis are **Must Have, Should Have, Could Have and Should Have**. Each stakeholder approved at the use of this technique, the only issue is that the MoSCoW Analysis can cause conflict between stakeholders as their requirements may fall into a category of least importance for the App. Having regular meetings with stakeholders to ensure they know what category the requirements will fall into.

#### MoSCoW Table

Requirement	As a	I Want to	So I Can	Raised By	Priority
1	User	Have a login page	Use the app correctly.	Brainstorming	Must
2	User	Register Email	Store the users details.	Brainstorming.	Must
3	User	Have password Creation	So each user will have a unique code they need to log in with.	Brainstorming	Must
4	User	Have social media links	See what deals and discount may be offered during specific times.	Brainstorming/Survey	Must

5	User	Map plug in	Search for nearby deals and discounts	Brainstorming	Must
6	Business Owner/Stakeholders	Decide on an app name	Launch/Move onto the next step of development	Brainstorming/Workshop process	Must
7	Admin	Have an Admin Login	Update and make any necessary changes to the app	Interview-Developer	Must
8	Developer	Assign Specific Roles	Perform certain functions	Development team/Interview	Must
9	User	Quick Search	Quickly search for a certain item	Brainstorming	Must
10	User	Advanced Search	Look in more depth to a specific item	Brainstorming	Must
11	User	Notification Bar	Kept up to date with certain deals and discounts	Brainstorming	Must
12	User	Stay Logged In	So you will not need to constantly log in when you open the app	Brainstorming/Interview	should
13	User	Have a username	Login in to the app	Brainstorming	Must
14	Business Owner	Correct Security Measure are in place	Make Sure user details are safe		
15	Business Owner	Offer Cross-Platform functionality.	Attract a larger user base	Brainstorming	Must
16	Business Owner	Logo	Have the logo in the	Brainstorming	Must

			top left hand corner and is clearly visible.		
17	User	Password Standards	Each user will create a unique password with a minimum of 8 characters	Brainstorming	Must
18	Developers	Data Integrity	Ensure the user will have the ability to attempt a login if wrong password is entered	Interview	Should have
19	User	Filter Price	Filter price depending on budget	Survey	Must
20	User	Category of activities/deals/places to stay	When using the app when a certain student discount is selected the distance and estimated time will be shown	Survey	Must
21	User	Weather plug in	User has the ability to keep up to date with the weather in a city or region	Requirements workshop	Must
22	User	Push notifications	Be kept up to date with the latest student deals	Survey	Should
23	User	Events Page	Kept up to date with Events during the summer	Interview	Could

			months- Festivals and concerts		
24	User	Discounts from all stores	Some stores do not offer student discounts.	Brainstorming	Won't
25	User	Group Page	Users can set up groups with their friends to recommend discounts/loc ations and other events to each other.	Interview	Could
26	User	Forums page	Discuss events on the forums page with other users of the app	Interview	Must
27	User	Recommen dations	Send recommenda tions to other users.	Interview	Could
28	User/Developer	My Account	User can view there details on this page	Brainstorm	Must
29	User	Gallery Page	Allows users to tag locations.	Interview	Could
30	User	Recommen dations on home page	Set amount of activities depending on their time in one location.	Survey	Should
31	Developer	Correct security measures are in place	Ensure users data is secure when using the app.	Interview	Must
32	User	Has the ability to	Allows the user to log	Interview	Must

		log out of the app	out of the app if they are not using it.		
33	User/Developer	Have an about page	Gives the user a brief overview of UniTravel	Requirements workshop	Must
34	User	Categories on the travel page	User can set a number of activities depending on their time spent in one location	Survey	Must
35	Admin	Admin Account	Set up admin credentials so any necessary changes can be made	Interview	Must
36	Admin	Admin Edit	Admin can edit any pages of the app upon request.	Interview	Must
37	Admin	Upload to gallery	Admin can upload to the gallery page	Interview	Must
38	Admin	Manage Accounts	Manage user accounts	Interview	Must
39	User	Easy navigation of the app	Ensures ease of use and it's easy to navigate	Brainstorming	Must
40	User	Scan codes	The user can use the app to scan discounts and deals	Brainstorming	Could
41	User	Compare different student deals	Allows user to compare different deals/places to stay or other events	Survey	Should



			depending price or location		
42	User	Favourites page	Users can add to favourites	Survey	Should

**Overview:**

All requirements presented will be gathered through scrum and sprint methodologies to see what work has been completed, what will be done and what issues have the team run into. it's also the best way of measuring the progress of the app and what work has been done so far. For me I believe that this agile approach is the best way to gather all of the purposed requirements, as it allows all members of the team either the developers or the business owner to work together to the end goal effectively.

**2.5.5.1 Risks Involved**

There are risks with every project. Some risks will have been planned for in the beginning stages of development, but some cannot be planned for. These are some of the following risks that have been identified.

- Scope Creep, as the project continues to grow and develop, change on the project is inevitable. The scope can climb un-intentionally or a stakeholder may ask for a certain deliverable after the list has already been drawn up. Making sure there is a decent timeframe in place for deliverables is crucial to the success of the project. Another area would be the budget, ensure that resources are evenly distributed, so funding issues will be low.
- Getting stakeholders to commit to meetings and interviews. The risks of meetings being cancelled are high especially during busy periods of the year; end of the year. Setting deadlines and targets will keep stakeholders on track.
- There is also a risk of unsustainable user growth, ensuring we have taken the correct steps to keep users involved in the app after it launches. We have taken the right steps to keep users engaged in the App after launch, offering updates and new content frequently.

These Risks will be managed closely, so the chance of an issue occurring are slim.

### **2.6.6 Requirements Workshop Process**

I plan to hold this workshop to address a few other additional requirements of my application. The final key stakeholders that should attend have not been selected yet, so far those attending will be Developer, Student and myself. We will make sure every requirement has been covered with enough detail. We plan to discuss the design and layout of the app. This will be done by reviewing competitor's websites from student discount pages, travel pages and a number of different websites and apps to see what potential features may have been overlooked and to gather requirements from this. Participants can then decide to use these potential features on the app.

**The attendees of the workshop are the following:**

- 1) Business Analyst- will be the facilitator and the scribe
- 2) Two students, previous backpacker and a student planning to travel for summer
- 3) App Developer

**Workshop Location:**  
**St Colmcilles GAA Club**

**Date of workshop:**  
Saturday 10th March 2018

**Time:**  
10.00am-12.00am

**Objective of the Workshop:**

The main objective of the workshop is to discuss the layout and design of the UniTravel app. An initial prototype will be shown at the workshop to gather some feedback from these stakeholders, they will also look at some of the competitors in the market to see what we can information we can gather. We also hope to gather more information about some features of the app that may not have been discussed initially and to refine the list of requirements for the next prototype. After reviewing the competitor's apps and websites may want to add some additional features to the app.

**Agenda:**

- 1) Go over the purpose of the workshop with all of the participants before the start of the meeting.
- 2) Outline the rules of the workshop.
- 3) Evaluate the first prototype with the participants.
- 4) Research some of the competitor's apps and websites with participants.
- 5) Review the additional features that may be added to the app
- 6) make sure everyone is on the same page and happy moving forward with the design, layout and the desired features of the participants.

**Rules of the workshop:**

- 1) Participants should arrive at least twenty to thirty minutes before the workshop to meet the other participants and put forward any competitor's websites and apps.
- 2) Participants can give any feedback throughout the meeting, but it should be related to the topics of the meetings.
- 3) Mobile phones and tablets are permitted during the meeting, but should be used for research purposes within the meeting.
- 4) All participants should listen carefully during the meeting, and give one hundred percent focus for the success of the meeting.
- 5) The end goal of the workshop is about collaborating with the other participants of the meeting. Any disruptive behaviour will lead to participants being asked to leave the meeting.

**Resources Required:**

- Apple MacBook laptop.
- Mobile phones and tablets.
- A whiteboard and markers.
- A projector to display findings
- Microsoft Word to review current list of requirements.
- Microsoft PowerPoint to display prototype.
- A table and at least five chairs.

**Final Deliverables:**

A document that contains a list of desired changes to the prototype, and the new features of the app.

### 2.6.7 Interface Analysis

#### Objectives:

After the app prototype and the requirements workshop were completed, a UML case diagram was developed. This diagram showcases the interface types that will be associated with the mobile app. Each of the actors are stakeholders within the organisation, they all have different aspects of the new app. An example of this will be a user will have access to deals and discounts. The UML diagram outlines the interactions between the app and the user. The diagram will also assist with making sure developing inconsistencies are avoided on the app. For example, the marketing team will be able to view the traffic from users registering and logging on to the app. This will also help them to measure the amount of traffic on the app, this information is also available to the development team to make sure the amount of users will not result in the app crashing from traffic. This information will not be available to users of the app.

#### Resources needed:

- 1) Apple MacBook laptop with Microsoft PowerPoint and Word
- 2) Microsoft PowerPoint to create a basic diagram
- 3) Creately will then be used to showcase a more presentable diagram

#### UML Development Checklist:

- Make sure a document analysis has been done on similar projects, should be reviewed.
- Review elicitation results to identify different types of interfaces.
- Review the app prototypes to potentially identify stakeholder interactions.
- Develop a UML diagram for the new UniTravel App
- Redesign the UML through Creately then, gather feedback from stakeholders about the UML and make any necessary changes if appropriate.

#### UML Diagram Name:

UniTravel App UML Case Diagram

#### Actors Used in the UML Case Diagram

- CEO
- User
- Marketing Team
- Administrator
- Development Team
- Hotel Management

#### UML Case Diagram Due Date:

22<sup>st</sup> of March 2018

#### UML Case Diagram Date of Completion:

21<sup>nd</sup> of March 2018

### **3. Requirements Elicitation Techniques Results and Analysis**

#### **Summary**

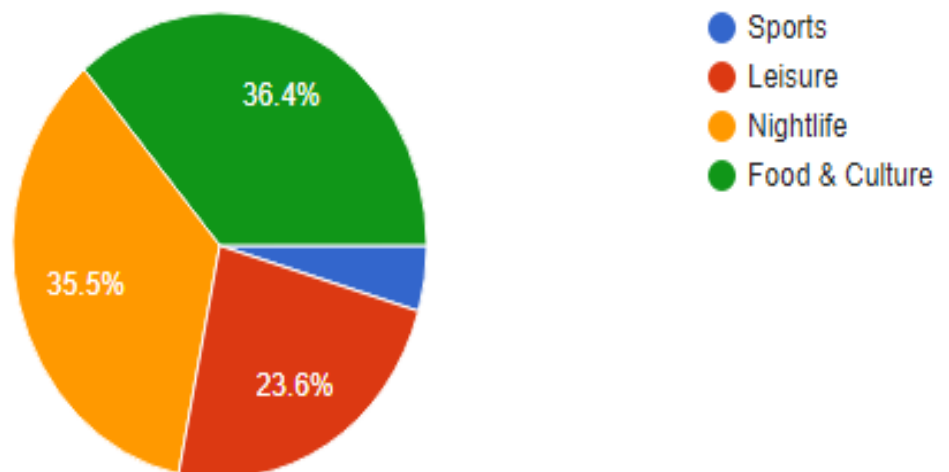
These are the results that were gathered using the requirements elicitation techniques. Requirements for the application will be gathered from these results of these techniques and will be used in the development of the App.



### 3.1 Survey Screenshots and results:

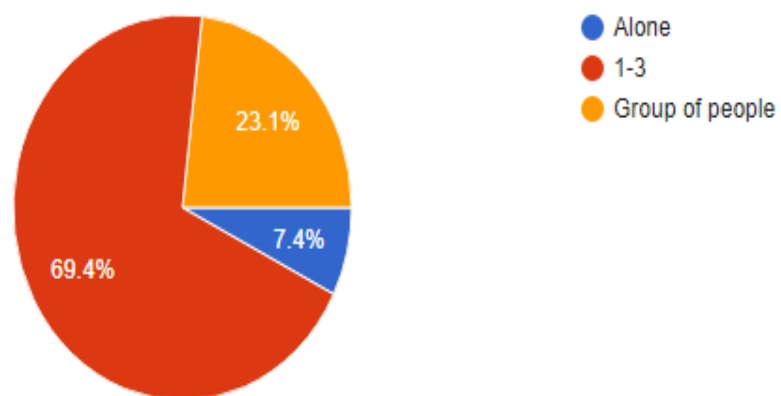
What activities would interest you while away?

110 responses



## How many persons would travel with?

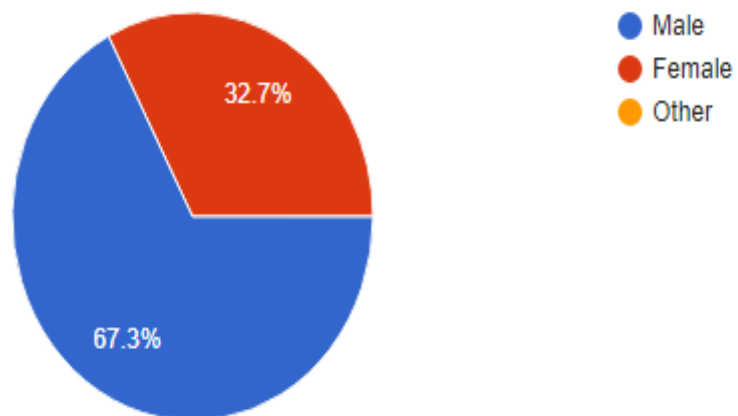
108 responses





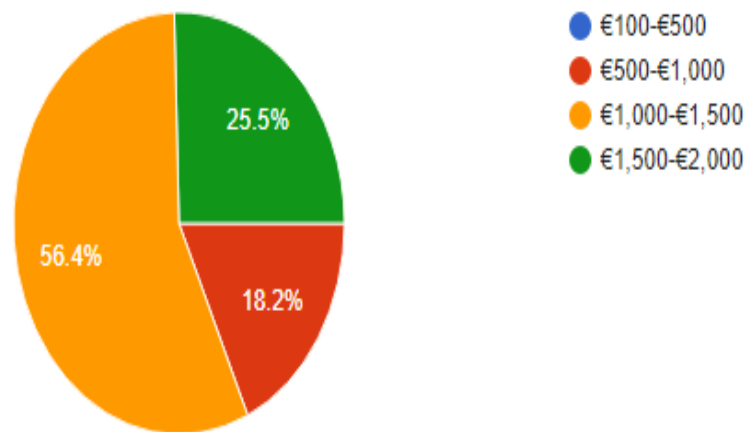
## Please indicate your gender

110 responses



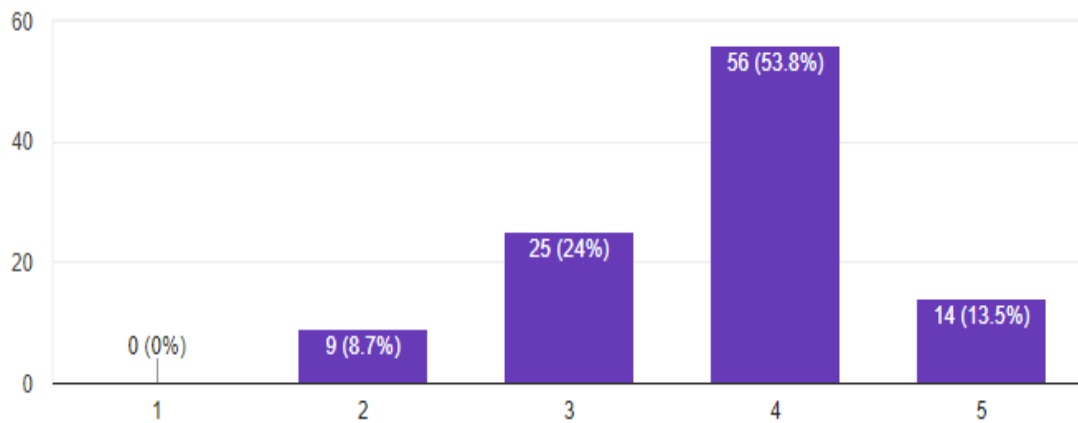
## How much would you spend on a 2-week holiday?

110 responses



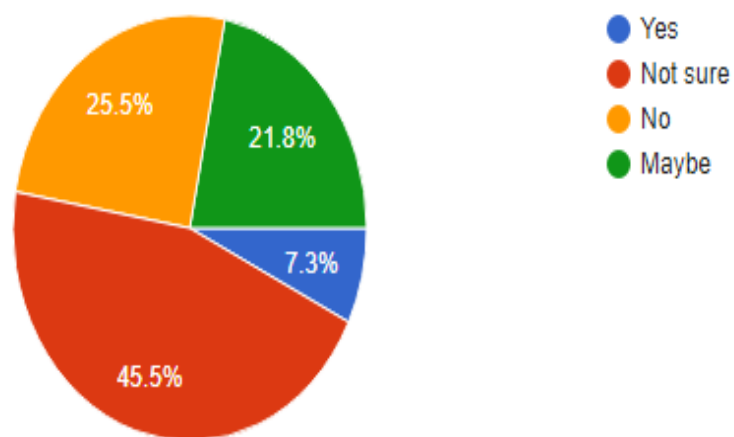
Would an Application that has a list of international student discounts be beneficial?

104 responses



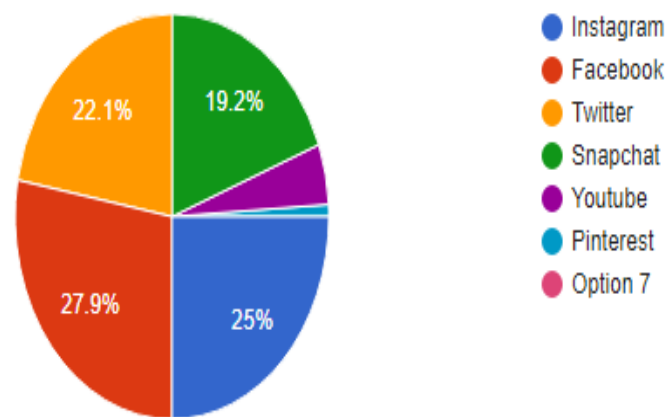
## Have you used student deals/discounts while traveling?

110 responses



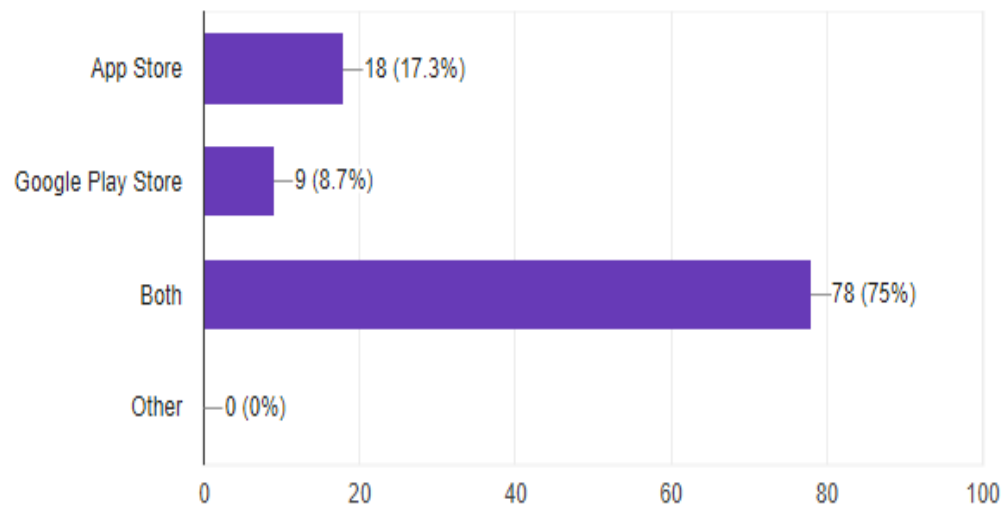
Which social media platforms would be best at making students aware of the proposed application?

104 responses



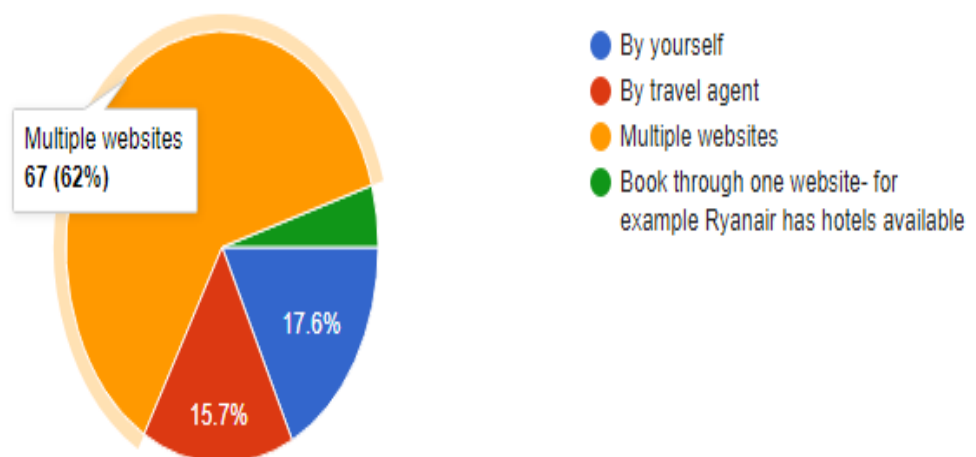
## If the application was developed, which platforms should support it?

104 responses



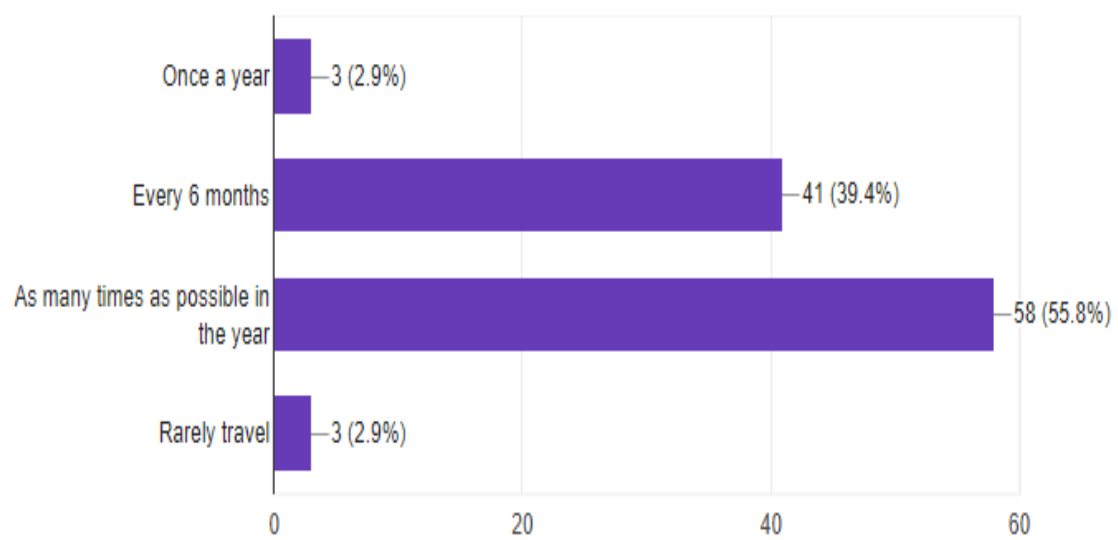
## How would you plan your trip regularly

108 responses



## How often do you travel?

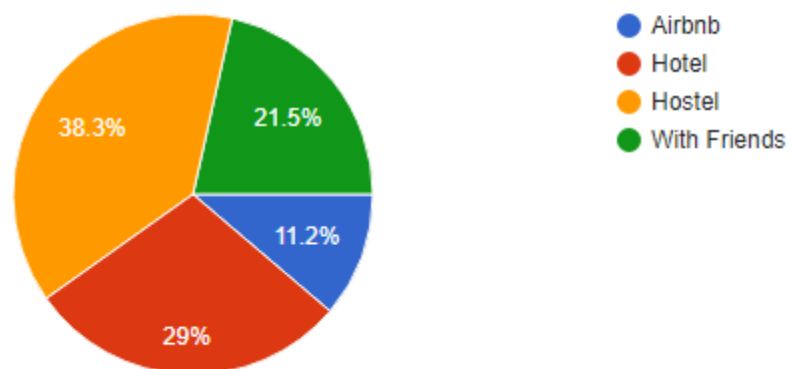
104 responses





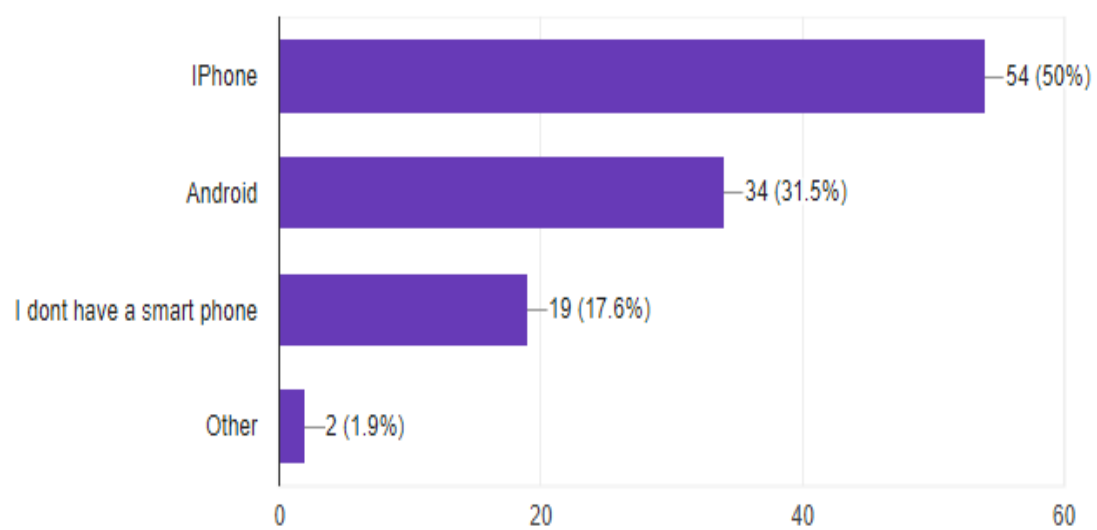
## Where would you stay?

107 responses



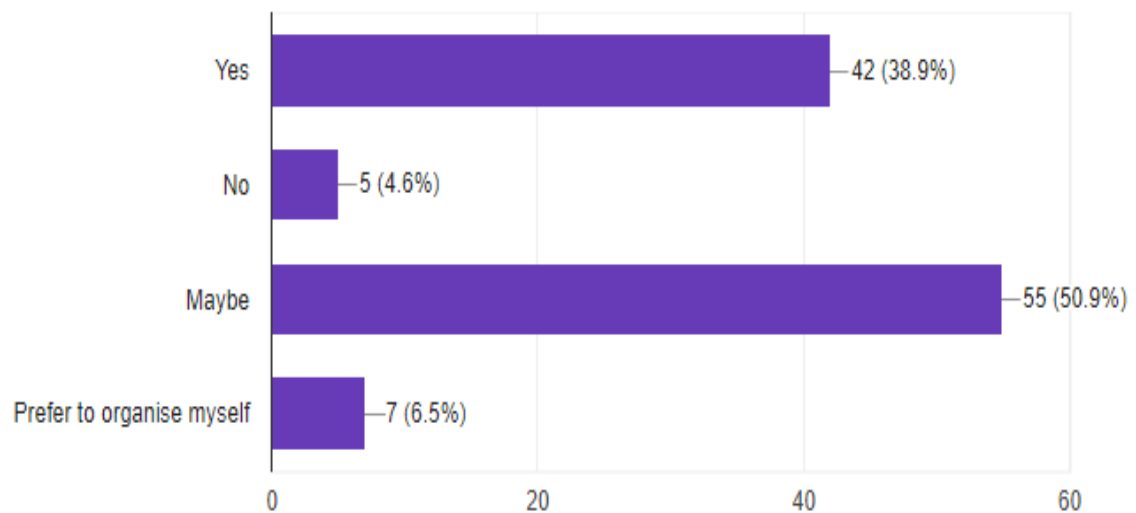
## Which of the following devices do you own?

108 responses



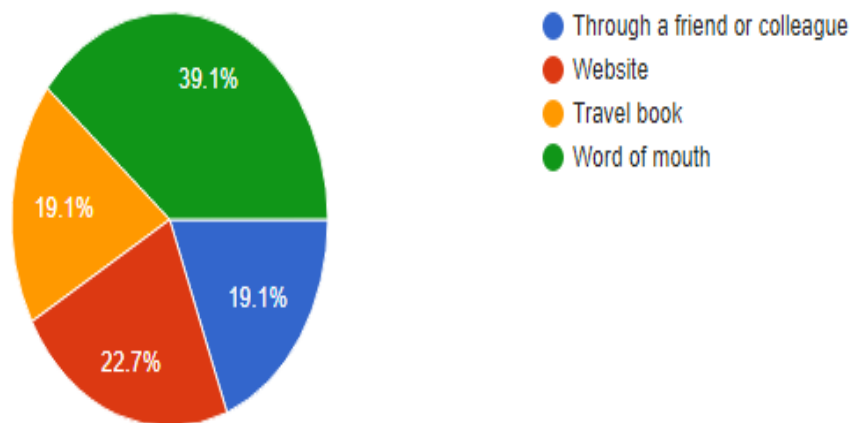
Would a number of activities depending on how many days you are staying in a certain city appeal to you?

108 responses



## How would you gather information about a city or region?

110 responses



### Survey Conclusion:

The survey was distributed by email and online to students who would fit the age demographic. As a result, a wide variety of opinions were gathered during the survey process. A lot of participants would spend on average €1,000-€1,500 so the addition of a filter depending on price could be added. A significant number of participants would travel in a group of individuals so the addition of the group feature would be beneficial to discuss different recommendations from each user. A huge number of student never thought of using their student discounts while traveling, this could be another way to save money while traveling on a budget. Letting student know about different discounts and deals could be added into the map plug in or just have a table available for each city or region. Student like the idea of a list of international discounts being available to them. Having links to social media pages is key as many of the participants are on these media pages, having cross-functionality is also important with users having different smartphones, with up to 75% of users agreeing to both. Giving users the ability to look at different places to stay and activities under one app is a must as users have to use a number of websites when searching for accommodation and activities.

Users are unsure whether or not if they'd use the activities list depending on how many days you are in a certain city, but the Yes vote is at 39% and the No is at 5% so we will look to include this feature. A significant number of participants would still gather information about a city or region by word of mouth and discussing it with friends. The inclusion of the forums page would give users first-hand information from users of the app, but may also recommend different types of activities that a friend may not have given them by word of mouth.

### Survey Requirements Gathered:

Cross Functionality	Cross Platform functionality for both IOS and Android devices.
Forums Page	Used to discuss different types of activities and can leave reviews.
Different activities	A variety of different list of activities depending on category.
Filter	Gives the user the ability to filter out any unnecessary information, can leave out any regions that may not be visiting.
Layout and Design	Keep the interface simple and appealing.
Social media links	The user can keep up to date on any updates from the social media pages
Price filter	Users can filter the app depending on the amount of time they will be travelling and what their budget may be.
Gallery	List of pictures from regions and cities that we advertise.

Compare locations	User can compare different cities depending on recommendation and what activities are available.
Favourites	User has the ability to like and store there favourites to review at a later date.
About us page	Brief description of the Business

### 3.2 Brainstorming Results

The Chairperson of the session recorded each participant's concepts as they were discussed. The first topic that was discussed was the potential name for the application, we devised a list coming up with potential names for the app; there was StudentTravel, UniTraveller, UniHoliday. Next was the number of features for the app, we discussed how many main tabs/pages the application would have. There would be a homepage with deals of the week from hotels, hostels, different cities and regions that the user would be interested in. The idea of when the App was first downloaded the user would register, entering in their basic information; name, email and place where they study. The user can then select a number of different activities that may interest them; places they've visited before, cities they would like to visit, nightlife and culture activities. Once these details have been entered, the app can be tailored to the user's needs. The app will also have a suggestion bar of "Things the user may like" this will allow the user to see other deals in cities or regions they may not have selected when they downloaded the app at first, this will keep users invested in the app and traffic should remain high. We decided not to overload the homepage as it wouldn't be very appealing to the eye and not user friendly.

Security was the next topic that was brought up, this is a huge issue as we would have user's information. We discussed a number of different security precautions that we will have to take, we decided to have a pop up disclaimer similar to google and a number of social media sites that notify the user that the app will have access to their information.

The two students one who had been backpacking and the other student who would be heading away brought up a few issues. They liked the idea of the app, they saw the benefit of having a number of different features under one room as very beneficial. When they went Inter-railing across Europe they focused on word of mouth of things to do and where to stay. One of the students had booked a hostel for their group after it was recommended to them, but after booking the rooms before they left when they arrived at the hostel it had closed for renovations. There was no update from the hostel to inform them of the planned renovations during the summer. This was a huge inconvenience for the group, as this topic was discussed the idea of a having a forums page for users. The ability to discuss, where users have stayed before, things to do off the regular tourist track. The sound of this forum page was very appealing to the two students in the session, and they could definitely see this feature appealing to other students and potential users. The students liked the potential layout of the App, but stressed in the session not to overload the pages with information as it would be too much, especially if there was an issue.

A topic I had marked down was to discuss how to get potential businesses on board and see what others in the session thought. There isn't an application on the market this suited to students. UNIdays would be the closest but their main focus is student discounts for mainly fashion brands

After each participant had finished giving feedback, we conducted our review to bounce ideas and feedback off one another and discuss the feedback from each participant of the session. All in the session agreed that security was one of the biggest areas of focus. The issue of users signing up with their emails and entering information about themselves, but once we have the correct security system in place there should be no issues.

We agreed to meet once more to iron out any remaining issues and see if we could gather any more requirements. We decided to include a map feature, links to social media and a rating system on a number of different categories within the App.

#### **Requirements Elicited from Brainstorming Session:**

Name- UniTravel, StudentTraveller, UniTraveller and Student Holiday	A unique app with a number of different pages and a beneficial information.
Advertisement	A way of attracting users but also potentially a way to earn revenue for the business.
Home Page	Simple but effective home page appeals to users.
Gallery	A gallery page showing off different activities and cities. Users can add it to their social media pages.
Forums page	Easy forum page linking users, can discuss different issues and leave reviews. Was also brought up during the survey and interview.
Remain Logged in	So the user doesn't need to constantly log in once the app has been closed.
Security	Having Information about our users must be stored correctly and safely.
Registration	User must register with the app first to get full access to all of the deals and discounts available on the app.
Layout & Design	Having a clutter free app will attract users and maintain a high level of interaction in the app. Keep it simple and design appealing
Number of Pages	Number of tabs/Pages that will be available to the users.
Filter	Users can filter activities depending on what appeals to the user.
Code Scan	Users can scan booking codes within the app.

Track user preference	See what deals and discounts appeal to the user/
Price Filter	Filter search depending on price range or budget of the holiday.
Group	Ability to set up a group of friends to review recommendations.

### 3.3 Interviews Results

My first interview was conducted over skype during the Christmas break

1) App Developer.

#### **What is your previous experiences when developing an application?**

Answer: I have been involved in a number of different projects with the company I know work for, these are involved in maintaining a number of different mobile applications. The company I work for offer robust travel technology to users. I also went through the same thing as yourself in my final year of college. I completed a similar project, designing an application offering a food delivery services, designing the application and gathering the requirements also, so I know some of the challenges you may have ran into! You learn from these experiences, and help you to manage your workload when you finish in college and continue into a working environment. I think the idea of the travel app for students is a very good idea, it's a competitive market, especially working on travel tech in my current job, but it's a good niche within the market for students who may be looking to travel on a budget.

#### **How much do you think it would cost to produce and develop this application?**

Answer: This is a major area as it could make or break the application, if you're not willing to put the funding into it then may fail. Not even that, you've to be passionate about why your developing this and care about the users of the app. You've to put yourself in the user's shoes, and run through different scenarios. What happens if it doesn't work? The app crashes when a user is loading a different page? The app is designed to be easy to use and have a lot of information about different things to do. Going off the top of my head to develop this application it will be in the ball park of 60,000-100,000 euros. To gather the right people, use the right tech, and discussing the idea with you and how you think it should look to attract customers I say this amount of funding will be required.



### **Did you face any issues when developing previous applications?**

Answer: You will always run into a few issues, unfortunately it's never that easy! You have to make sure you give enough time when gathering requirements, and giving feedback to stakeholders and developers. Setting up some of the pages/tabs we may run into some issues. Setting up the map page plug in and getting it to run without any issue. Each page should be tested thoroughly to see how it runs and do any issues arise. I think using a test group of students to gather feedback before the launch of the app would be very beneficial. This will allow the user to make any changes if they are needed before the initial launch of the app. If these steps are taken, then the development and launch of the app should be an ok. Taking an agile approach may be the best approach, so if any issues arise you have the ability to make tweaks if needed.

---

### **How long would it take to create and develop the app?**

Answer: It depends getting a decent prototype up and running will take 4-6 months, then a number of factors have to be considered like budget, the team that's been assembled to develop the app, the different types of requirements, will the needs of the stakeholders change; all of these factors have to be considered. Setting weekly and monthly deadlines are crucial to making sure objectives are being met, but it's also a way to measure success which can then be shown to stakeholders so they know what work has been done. If everyone is working towards the end goal, then it should take around a year to get the first version of the application to market.

### **Interview conclusion:**

This interview was a great experience and a good start to gathering some more requirements, I was glad to get one interview completed before Christmas. I enjoyed hearing about previous experiences from this developer, and discussing the market and what niche the UniTravel app would fall into. I feel the feedback I got will help in minimising issues that may arise. Discussing future expansion with him you can see the appeal and benefit of the app, to start off and then look to expand to future markets was a great boost. Looking to expansion would be great down the line.

### **Interview Questions**

#### **2) (User-student)**

### **Would you see any benefit in using such an App?**

Answer: Yes defiantly, from my own experiences of traveling, the main way I gathered information about countries to visit and activities to do is discussing it with friends who've already visited these places or word of mouth. I wouldn't really look to a travel book, well for certain things I may but id steer away from them especially when you're in a different city you don't want to give off that ultra-touristy vibe. I like the idea of the application in general, mobile phones are a huge part of everyday life now, so using this to get the app to users is great. I've a student discount app for clothing that is really great, a number of my friends use it as well and we'd always keep an eye for when certain discounts are realised, so I could see them using this app as well and loving it. I ran into a number of issues when traveling before, so I wish I had this app when I was traveling. I'm heading to a number of places over my college breaks and then heading away for the summer so I'd love to have this app available.

---

### **Would you be ok with giving any feedback to improve the App?**

Answer: Yes absolutely, at the end of the day giving the feedback to yourselves will only improve the overall usability. Whether its feedback on the layout, load time of pages, social media links. I think these are all crucial for the overall success of the app. Some people shy away from giving feedback, but I've no issue with it. You've discussed the rating system either 1-5 or stars; I like that scale for feedback as it's easy to use and feedback can be easily gathered. I like the idea of the forum page within the app, you can give feedback and discuss places you've been with other users so I like that. I think building the hype for this app would be huge and will help the success of the app in the long run. A lot of people between the age of 18-25 will look to social media for things to do and places to visit. A lot of people use Instagram and twitter these days so building a good social media profile is huge. Instagram is used by nearly everyone my age nowadays as you can post pictures, videos and link websites in the profiles of users. A lot of my friends follow the LovinDublin page on Instagram, I think they post good content, they keep you up to date with good things to do and places to visit in Dublin. They also post a lot of content about food either recipes or new and good places to eat in the city which I'm a big fan of.

### **Would you be interested in using this app instead of a travel website?**

Answer: I'd love to use this app, as I said earlier I wish I had this app when I was traveling as I ran into a few different problems; from accommodation falling through last minute, not sure of things to do and places to visit. There are some things that would interest me like food and culture, whereas some feedback I've gotten from mates wouldn't fall into a category I like so I really like this app. I think it would be more appealing to us students as we would be more open to using the app over a website. Some website aren't suited for

students and don't give decent feedback for students about nightlife or fun activates that appeal to them and not to older people. I feel that some website are a little outdated and may only appeal to older people, apps are more appealing to us as most students have smart phones so I like the idea of the app. The ease of opening then clicking on the app over searching for a website may be a little slower, I know this is a small issue but I think a few others will agree with me.

### **What sort of Layout/Design would attract you to the application and other students?**

**Answer:** I think you don't want to overcrowd the home page, make it user friendly it doesn't want to be an eye sore. Making sure you get the right blend for the home page will ensure the success of the app. This will attract users to the app right away. Make sure you use a vibrant colour to pop when the app is opened. A lot of apps that are successful like Unidays we can use that as the example, it's a basic layout with a bright green colour but gets the point across quick. It has a scroll bar at the top of the page displaying some of the best discounts for the week. The have a basic layout but it's very effective and I like it. I like the idea of filtering some discounts that may not appeal to me or other users, this will cut out the clutter and keep users engaged and offering a suggestion tab would also be great as it will lead users to new places to go and new activities to do.

### **Do you think there is potential for future expansion of the UniTravel App?**

**Answer:** Yes, absolutely you could look into a number of different markets like J1s in America and other holidays to Asia. I think it's a good place to start as a lot of students go away during their breaks to Europe, you can gather feedback and tweak your findings to improve the app but overtime see what is needed to move into these new markets. I think looking to keep the business expanding into new markets is the best way to measure success.

### **Interview Conclusion:**

Good to get an understanding of what a student would be looking for in the app. Hearing of issues this student ran into when traveling before and the benefits the UniTravel app would thrive in. Making sure the layout and design is user friendly and not too crowded, is a big way at attracting new users to the app. A filter was appealing to the user as it would reduce the needless clutter on the app that wouldn't interest a user. The user would be more attracted to the app instead of a travel website, as the student aspect is a lot more appealing; with student nightlife and other activities that would interest them.

### **3) Booking.com Employee**

This was a last minute interview with an employee who works in Booking.com and was hugely beneficial gathering some insight into the travel industry.

How long have you been working in the travel tech industry?

**Answer:** I've been working for booking.com for the last 2 years, it's been a fun experience working in an area I didn't know much about. Booking mainly focuses on giving their users an extensive database of different hotels, apartments and a variety of other activities to do. Our main competitors would be Airbnb which offer rooms, apartments and houses or Expedia who would be one of our main rivals offering similar services to us.

### **Discussing the Market?**

**Answer:** The market has never been bigger then at this current period, there is a huge amount of companies that have websites and apps for traveling purposes. It's a very competitive area but I feel the area you are looking into is still very untapped offering student's different rates and discounts. It complies a lot of different aspects of other apps and websites and has them available under one app which is great.

### **How does the UniTravel App compare to Booking.com?**

**Answer:** Well at booking we offer a range of accommodation throughout the world to users depending on their selected criteria and filters. Listening to the idea of the app it has accommodation under the umbrella of the app. At booking we have focused on one aspect of the market by just offering accommodation and a brief explanation to our users. We don't focus on offering information about cities or regions, especially to students who would usually go out and gather information by themselves. Having this information freely available on the app, eases the level of stress that goes into planning a trip abroad.

### **Events and trips?**

**Answer:** I feel there may be some trips and events that booking.com avoids or just don't realise are happening. A lot of student will head to Europe from the May to August for festivals and concerts. I think that would be a good area to look at and focus on, may be offer some deals or discounts for tickets, accommodation, or food. The market is huge for students, a lot of different offers and deals could be offered for students. We have a good feed of traffic looking up hostels along interrailing routes, but some of the best hostels are not on booking and students find out about them by word of mouth. When I went interrailing I stayed in this hostel called Grandio in Budapest that my brother told me about, my god it was the best craic ever, I'd a great time, but there wasn't anything online about it at the time. Some students still may not know about it, and having a student app providing all of this information would be so beneficial, especially to those who may not have got the best of recommendations.

### **Interview conclusion:**

This was a very beneficial interview, gathering insight into the travel market and their main focus of providing accommodation. They discussed how to properly navigate the market

and avoid any problems or issues. We discussed their main competitors and how they try to get out in front of them to attract more customers. We also discussed adding in an events and trips page to students, they wouldn't really offer these deals about festivals and concerts to users, so it's another feature that can be added in. It was a shorter interview than my previous interviews so my questions were limited as there was a time restriction. Overall it was a great experience and the interview ironed out some issues and problems I had with the market, but also fears about the market.

#### **4) Interview Second Student**

This student will be going away at the start of summer travelling across Europe.

##### **Would you see any benefit in using such an App?**

**Answer:** Yes, absolutely especially that I will be heading abroad for the summer I would love to use this app. The main way I've gathered information about a city or area I will be heading too is by word of mouth from friends who have been to these countries before. It's still a good way to gather information about a region, but I ran into a few issues like friends who went to a city but can't give me enough information about the city like where they stayed, what's good to do and other activities they did. Or not getting enough information about a region or getting information about a certain activity that I've no interest in. I feel the UniTravel app used in tandem with word of mouth from other friends who be hugely beneficial to me, as I would still get information from my friends and family, but I can then look at the App for other things that will interest me.

##### **Would you be interested in using this app instead of a travel website?**

Yes, I would look to use it instead of a travel website, I wouldn't really use those websites that much and would gather information through word of mouth. I like the idea of having a number of different categories that would really appeal to me and it gives me a huge variety of things to do when I'm traveling so every day will be different.

##### **Have you run into many issues when gathering information?**

Yes, I've ran into a couple of issues. It's been a little stressful trying to plan this trip away as we began to organise it during exams and when exams had finished. I ran into a few issues as I was finished exams but two friends still hadn't started so trying to organise a day to meet up was tough. I feel the app could cut this inconvenience out, I would be able to look at a few places to stay and activities to do and I'd be able to pass on the information to my friends. I also think a good idea would be to add a party or group feature. Users would be able to add friends to a group and then would be able to recommend to each other so your party can review and compile a list of places to stay and activities to do.

**Would you be ok with giving feedback to improve the app?**

Of course I feel the feedback would be used to improve the overall experience of the app, giving this feedback would lead to tweaks and improvements being made. If the organisation doesn't care about their user's experience at the end of the day, it will be a failure.

**Would you like a forums or experience page to be included from previous users?**

Yes, absolutely I'd love to have that available to me. I would love to have this feature available as I could discuss activities and cities with other users, but also see what users say about places I plan to stay. This feature would defiantly attract more users, and the plan to have a similar layout to boards as many users will be familiar with it.

**Interview Conclusion:**

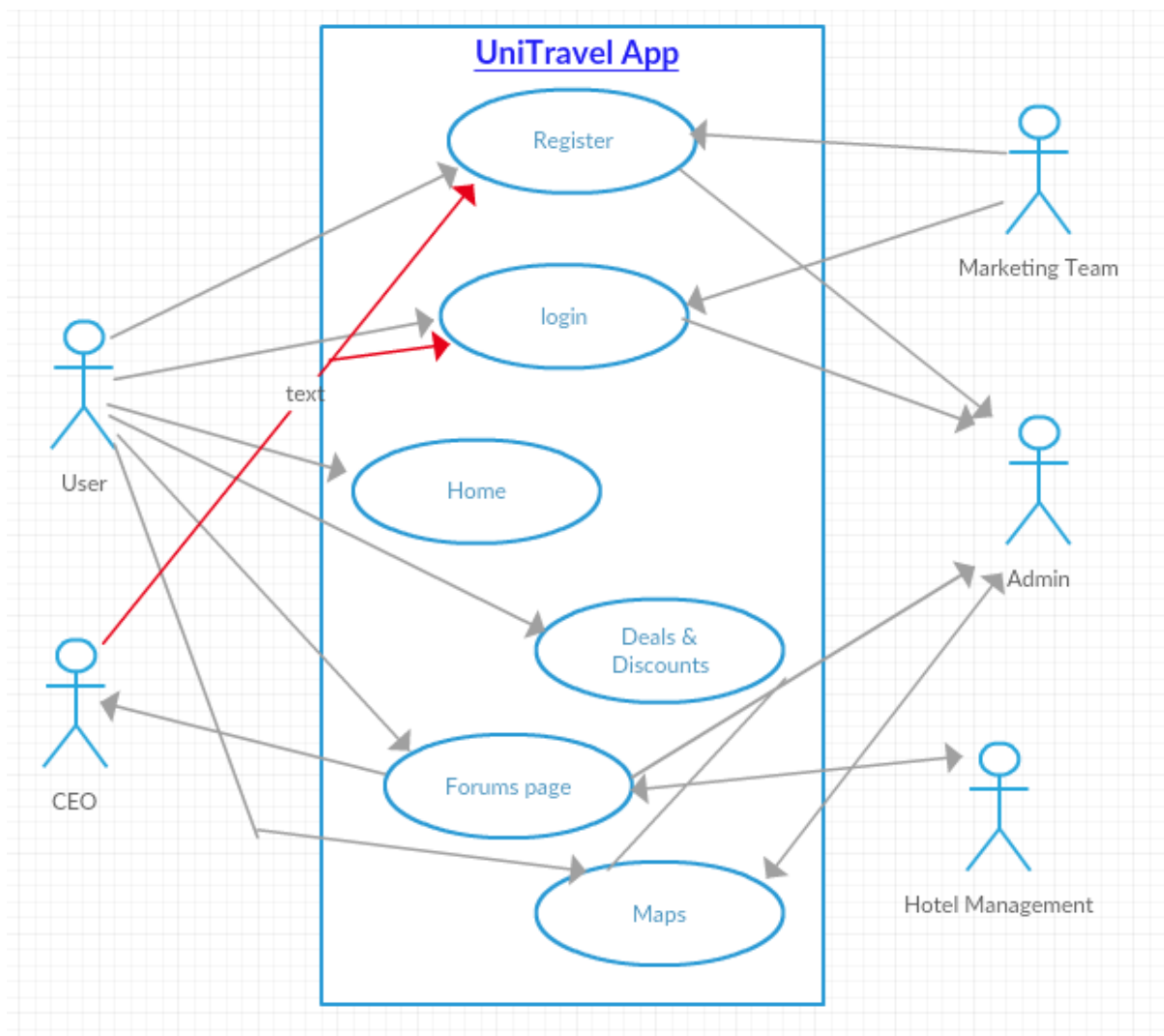
The second student I interviewed, but this student had not been backpacking before so they would be going through the stress of organising accommodation, activities and other cultural activities. It was also a great way of comparing the feedback I got from the first student I interviewed. It was a good way of seeing what this student is going through with organising their trip abroad. I was able to gain an insight into better streamlining their experience to make sure they get the best information they require. Additionally, discussing the inclusion of a group page with users who are travelling together was a good idea. Giving accommodation or activities a like and then adding it to your group page, then your friends in the group can leave a like or star if they like your recommendation.

**Requirements gathered from the Interviews:**

<b>Admin Features</b>	<b>Admin Credentials</b>
<b>Security Features</b>	<b>GDPR requirements are met and correct security measures are in place.</b>
<b>Stay logged in</b>	<b>Ease of use and reduces the amount of time spent on re-entering details.</b>
<b>Data Integrity</b>	<b>Ensure users have the ability to attempt login if wrong password is entered.</b>
<b>Events Page</b>	<b>Kept up to date with all events going on during the summer- festivals and concerts.</b>
<b>Group Page</b>	<b>Users can set up group page to recommend different things to each other.</b>
<b>Forum Page</b>	<b>Discussion page</b>
<b>Recommendations</b>	<b>Can send recommendations to other users.</b>

### 3.4 Interface Analysis and Results

#### UML Case Diagram



#### Conclusion of the UML Use Case Diagram:

This diagram showcases the relationship that will exist between the stakeholders of the project and the new UniTravel app. The Stakeholders or actors are placed around the outside of the UML User Case diagram. The arrows are placed around the diagram linking each actor with various cases within the diagram/App. Each actor has at least one of the use case diagrams. For example, the hotel management can review the Forums page of the app to see what kind of reviews and feedback has been left by users who have stayed there, but also to see if there offers are being shown correctly. These actors will not have access to un-necessary or un-authorized use cases in the diagram. If the hotel management can see what kind of deals



& discounts are being offered they may look at competitor's prices and look to change their prices, or may put prices up depending on the competition. They may also look at traffic and see why they aren't getting enough business.

### 3.5 Prototypes Version One and Two

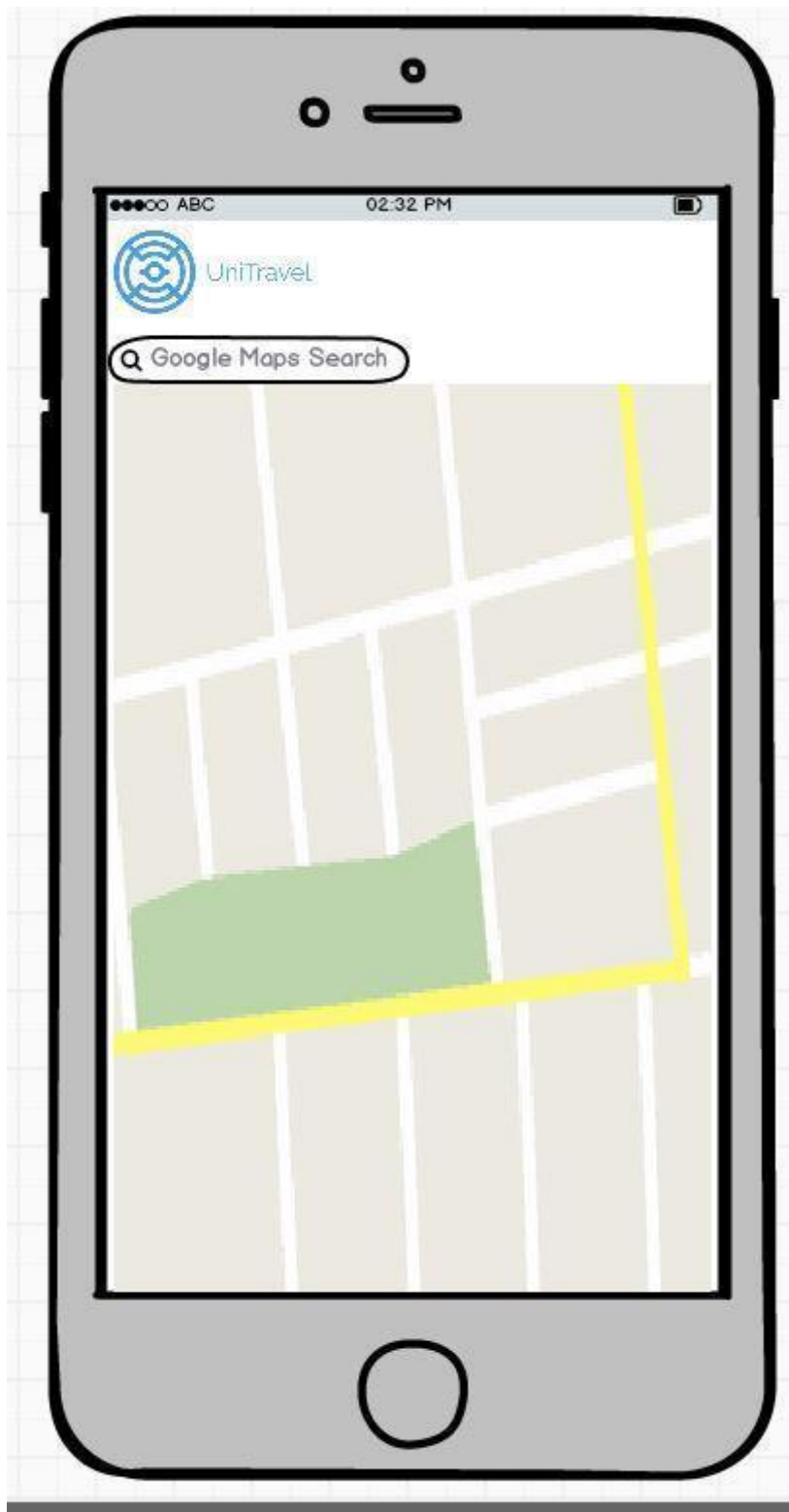
#### Prototype 1 Welcome Screen



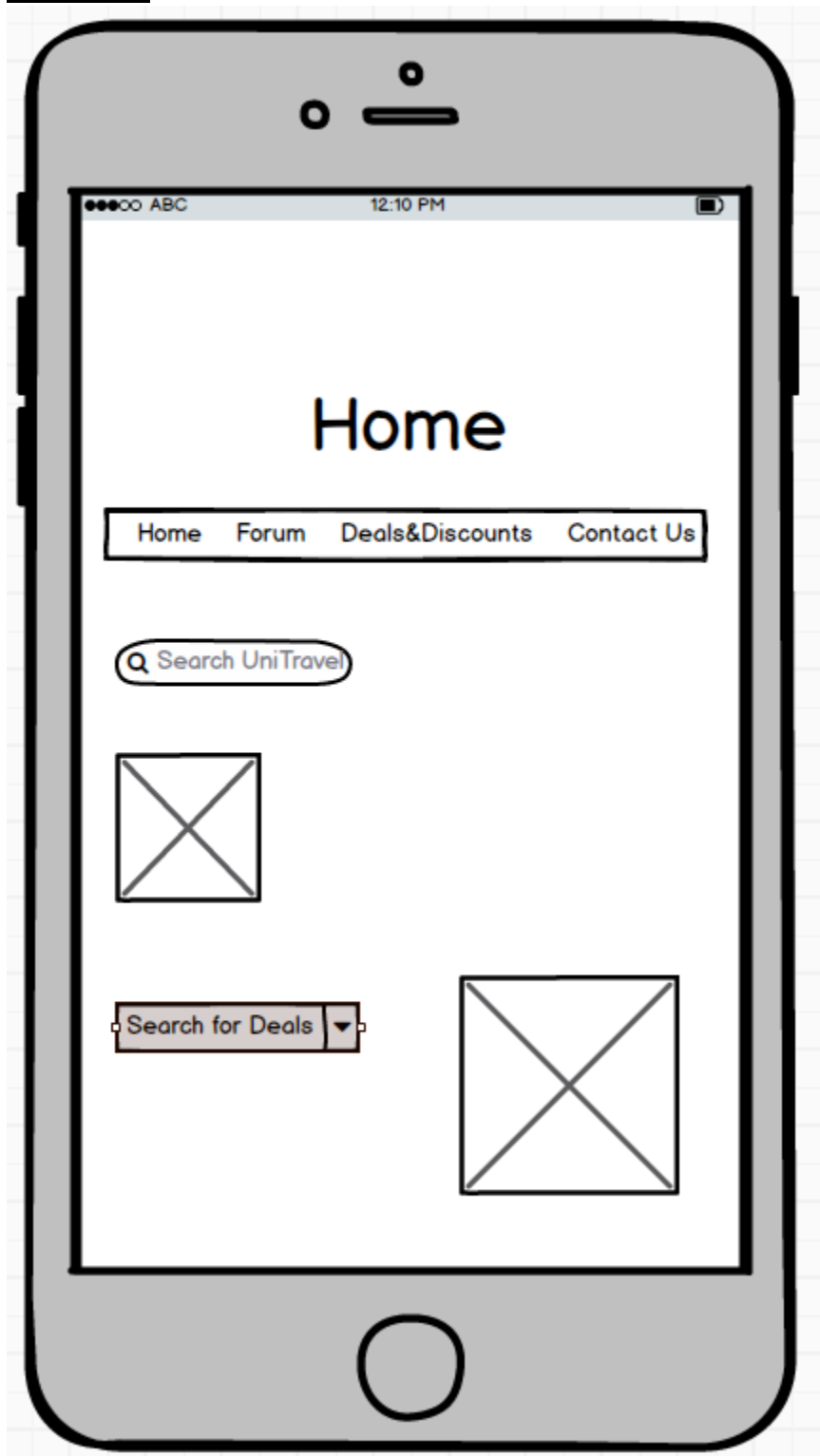
Login/Registration

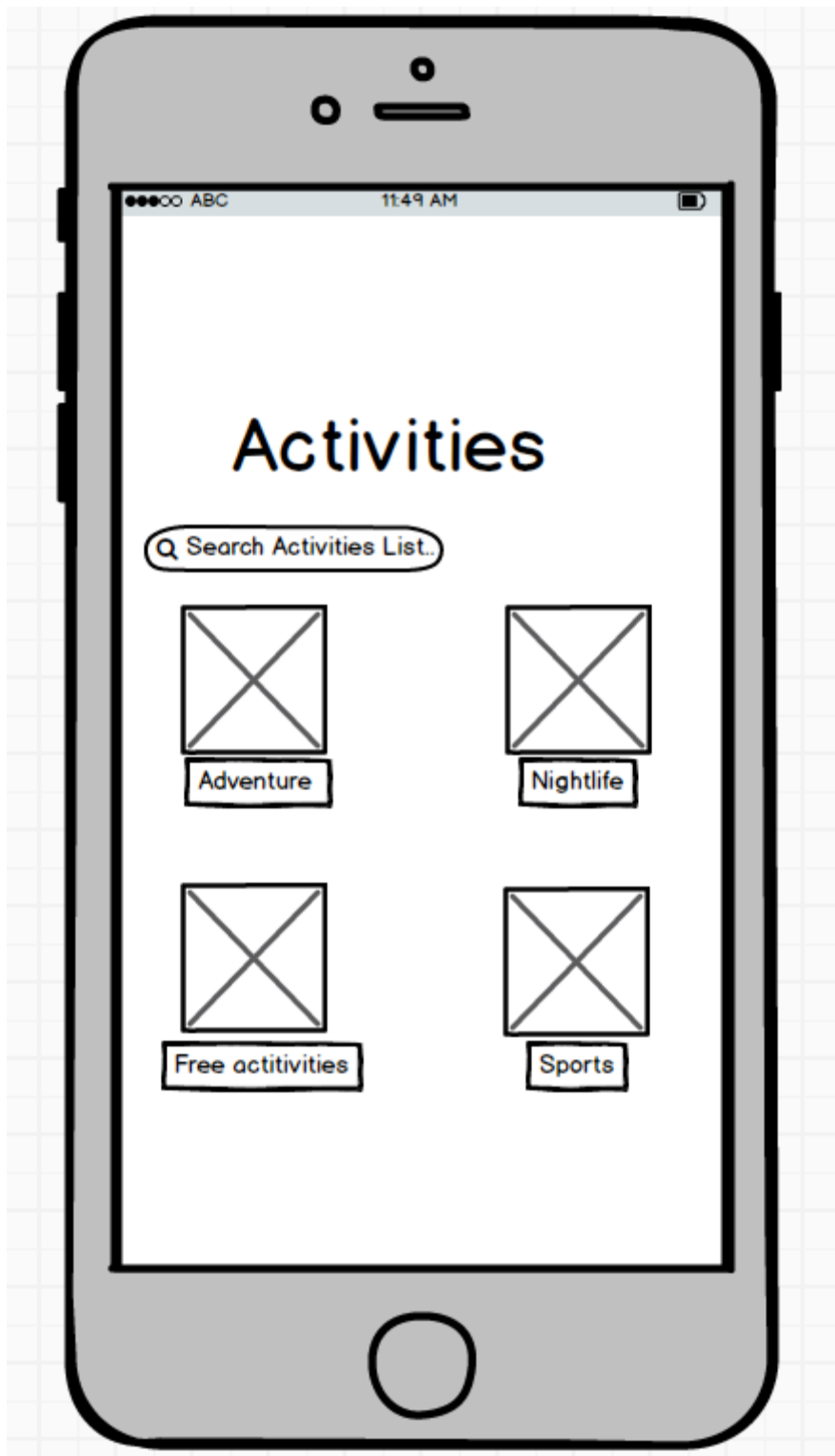
The image shows a hand-drawn illustration of a smartphone with a registration form on its screen. The phone has a grey body and a black screen. The status bar at the top of the screen shows signal strength, the text 'ABC', the time '12:05 PM', and a battery icon. The form is titled 'Register' and contains the following elements:

- A text input field labeled 'Name:'
- A text input field labeled 'Email:'
- A text input field labeled 'Password:'
- A text input field labeled 'Confirm Password:'
- A checkbox labeled 'Would you like to receive notifications' with a green toggle switch.
- A button labeled 'Follow Us now!'.

Map Page

### Home Page



Activities Page

### **3.5.1 Prototype Version One: Report**

This prototype version 1 was created and developed with some of the results and conclusions of some of the previous elicitation techniques, like surveys, brainstorms and interviews. The result that were gathered were then analysed and the basic requirements were used to create and develop a version one prototype, this will be used during the requirements workshop. For the main objective of UniTravel to be made any layout, design, features and additional requirements that are requested after the requirements workshop need to be implemented in a version two prototype.

From the elicitation techniques used; survey, brainstorm and interview. I produced a number of requirements for the UniTravel app, after reviewing the requirements, many stakeholders had similar requests so the priority of meeting these demands as high. It was a fairly basic prototype just including some of the basic features requested by the stakeholders. The register and login page was requested it was included to allow users to register to the app and give them the ability to login, but still kept in a fairly basic design. The home page included a search bar and also a drop down menu so users could search for specific deals and discounts. A forums pages was included as it was mentioned throughout the elicitation techniques, the user can discuss different topic on the forums page. A map page was included so users can easily find any discounts easily depending on their location. An Activities page was also included to list out what types of activities were on offer.

### 3.5.2 Prototype Version Two

#### Welcome Screen

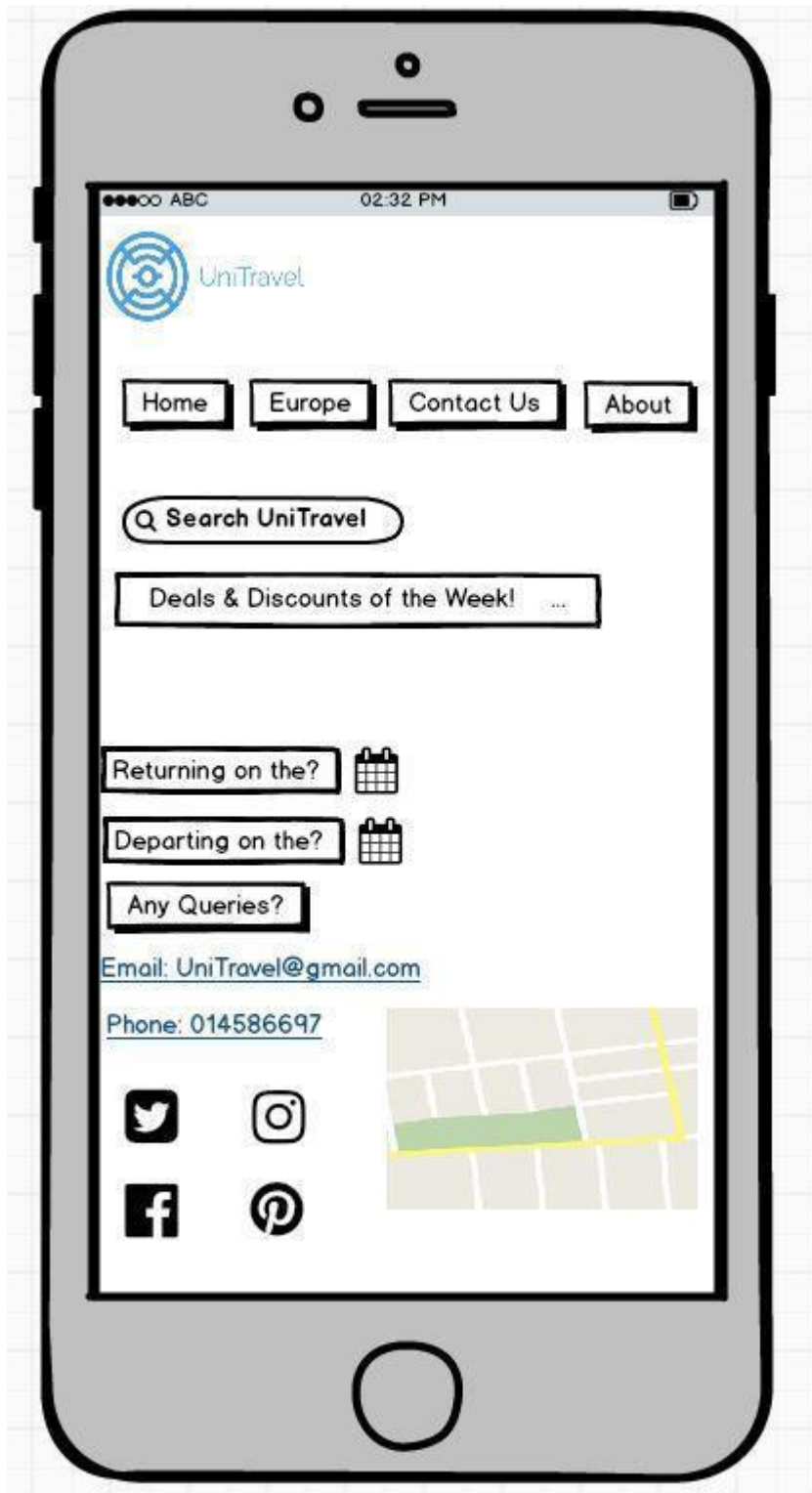




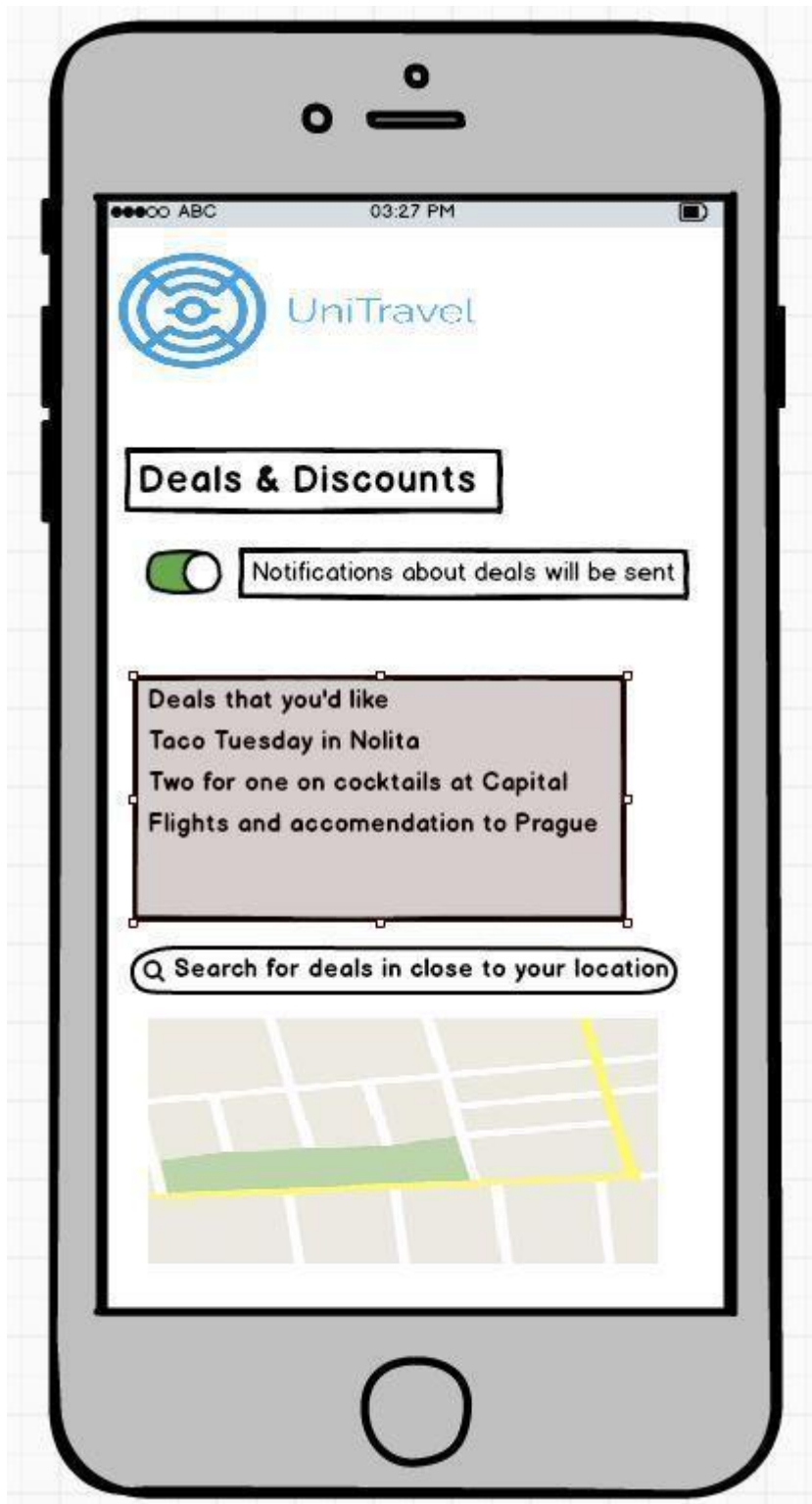
### Login and Register



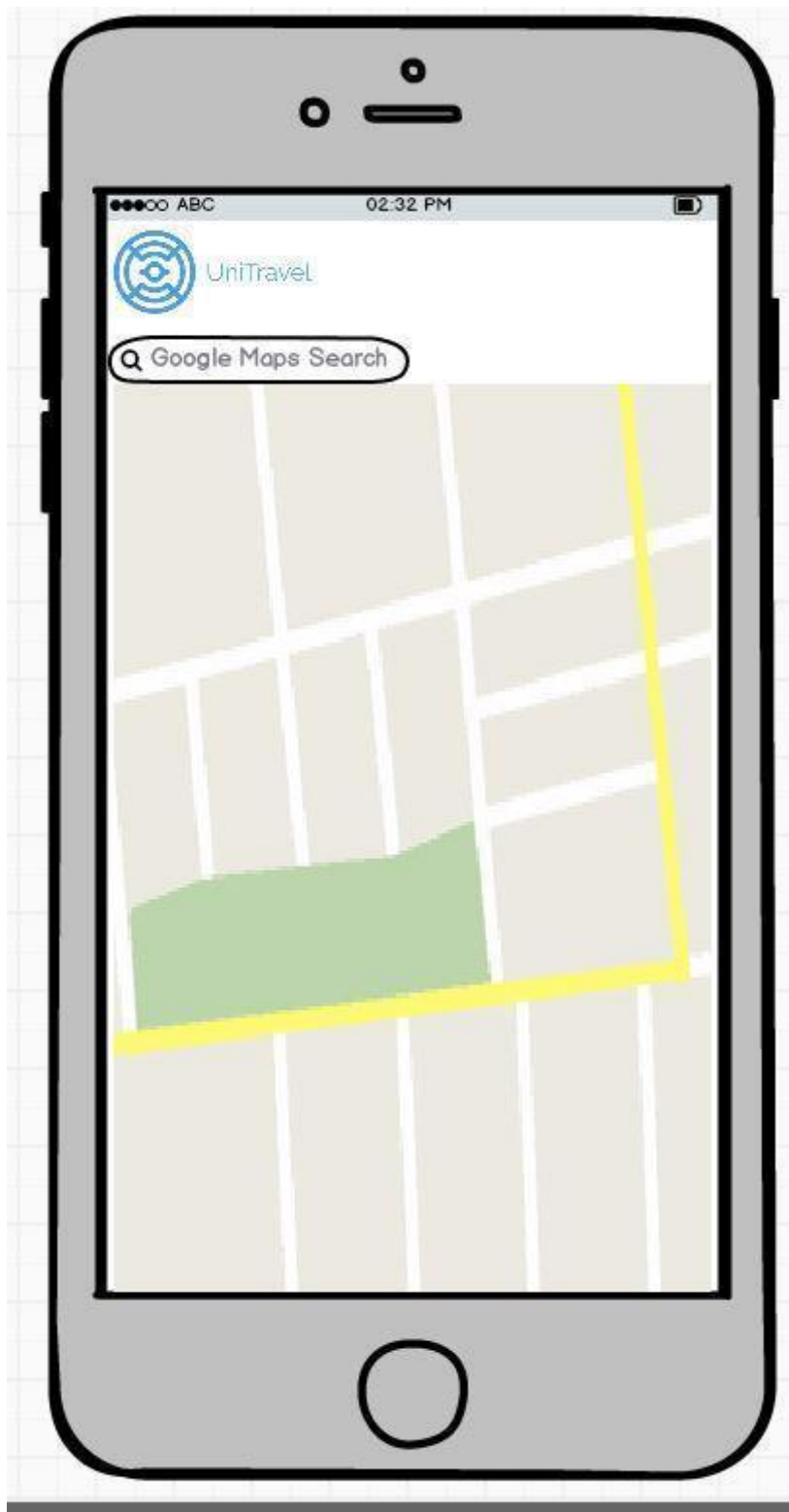
## Home Page



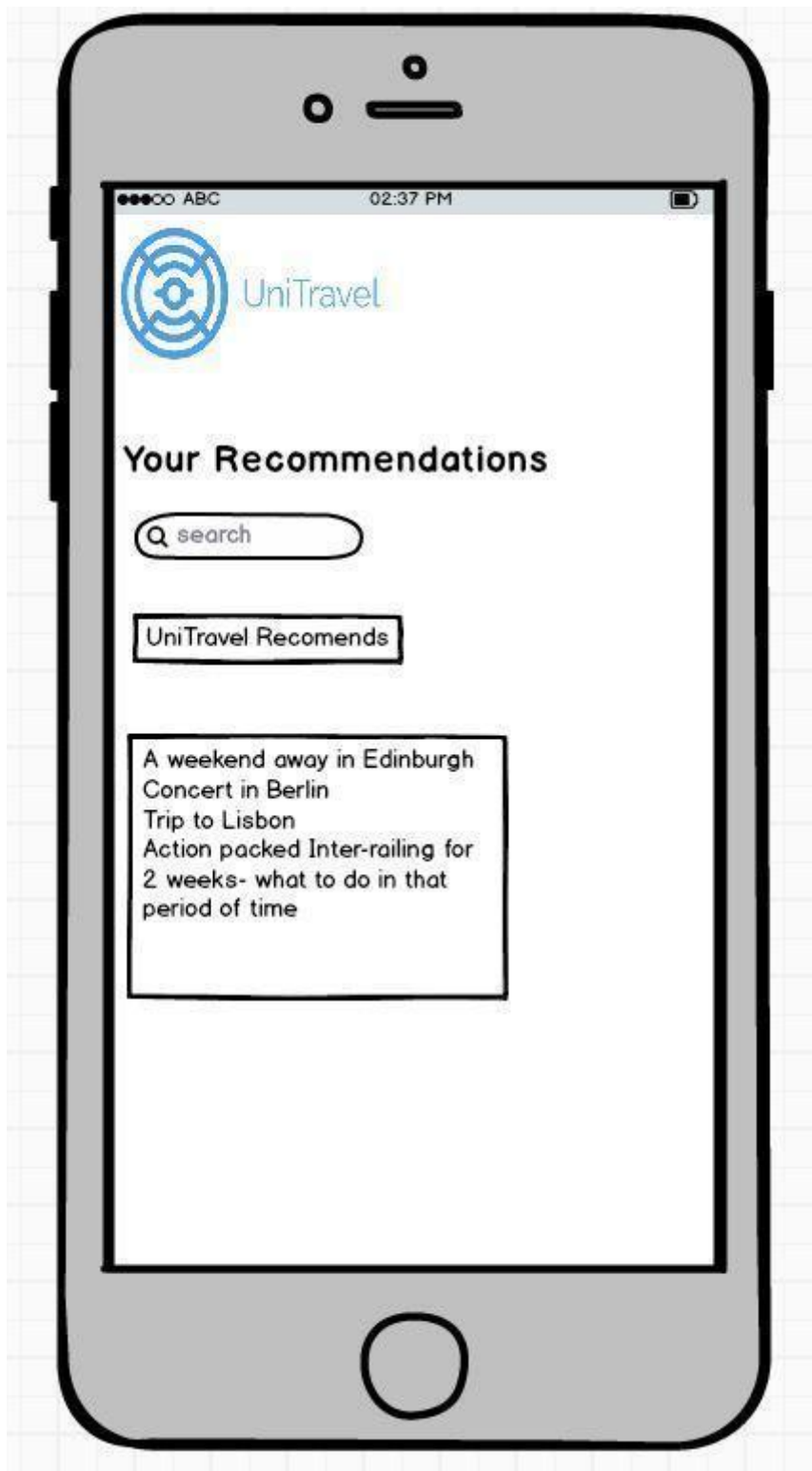
### Deals & Discounts Page



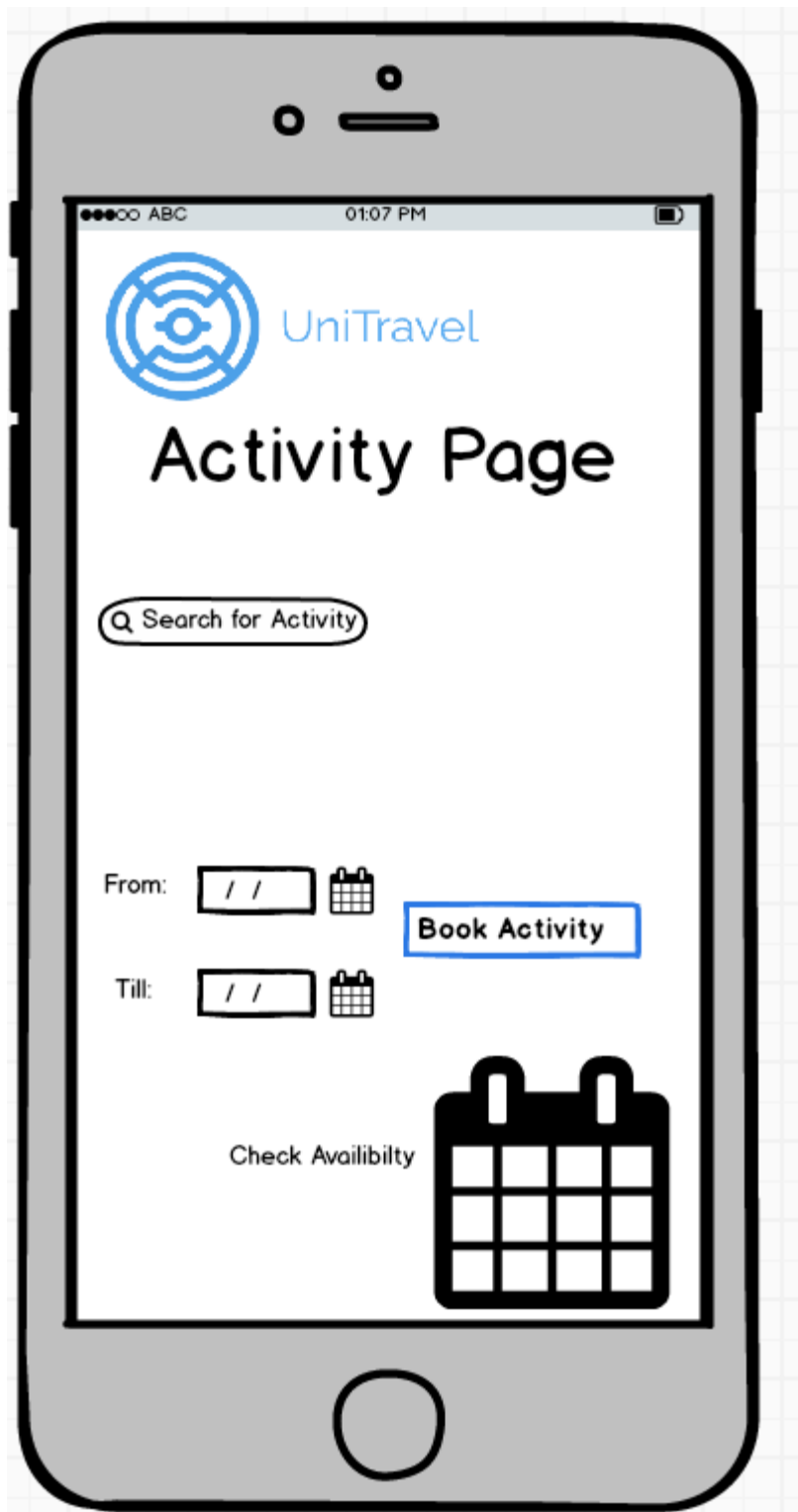
UniTravel App

Map Page

## Recommendations



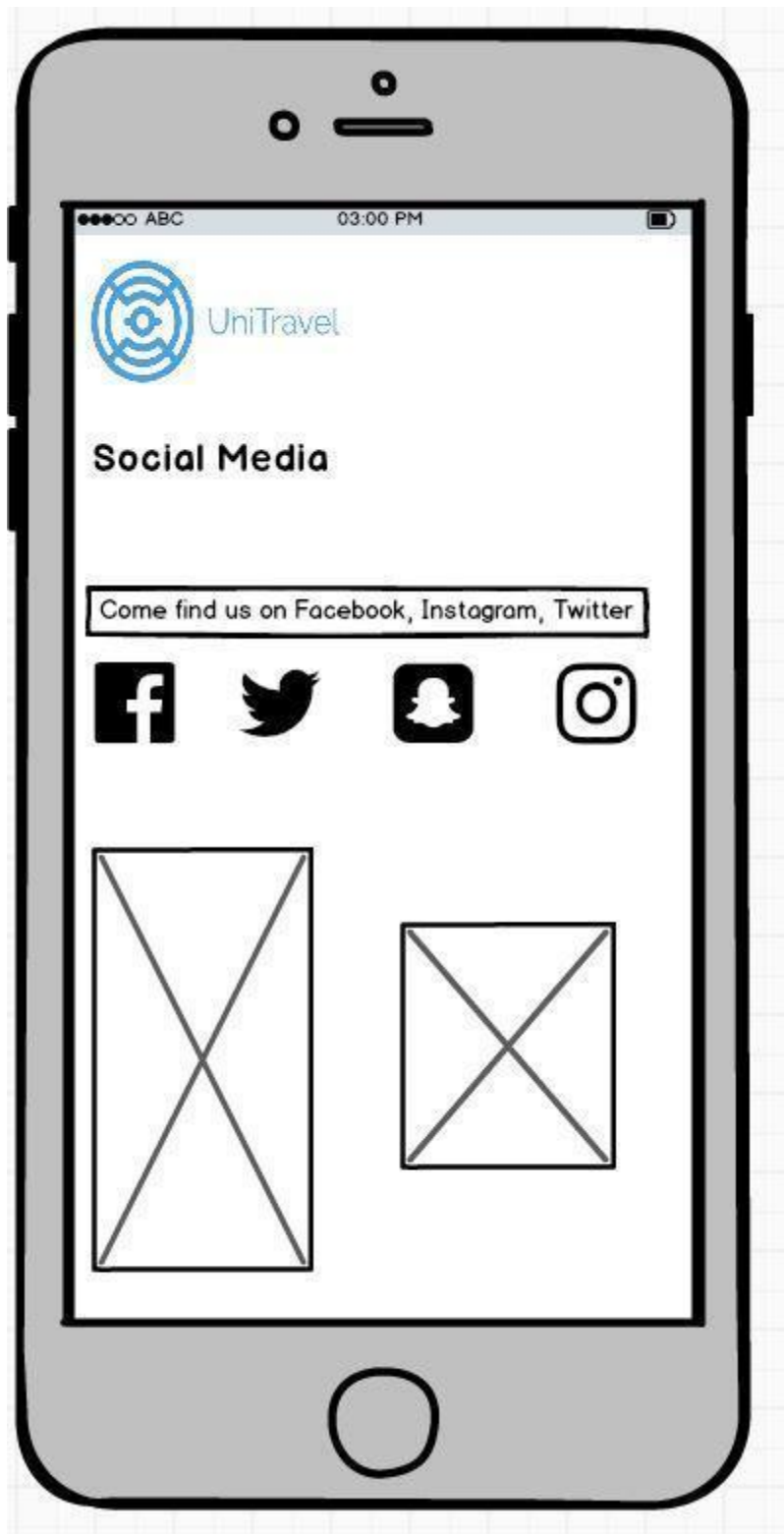
## Activity Page



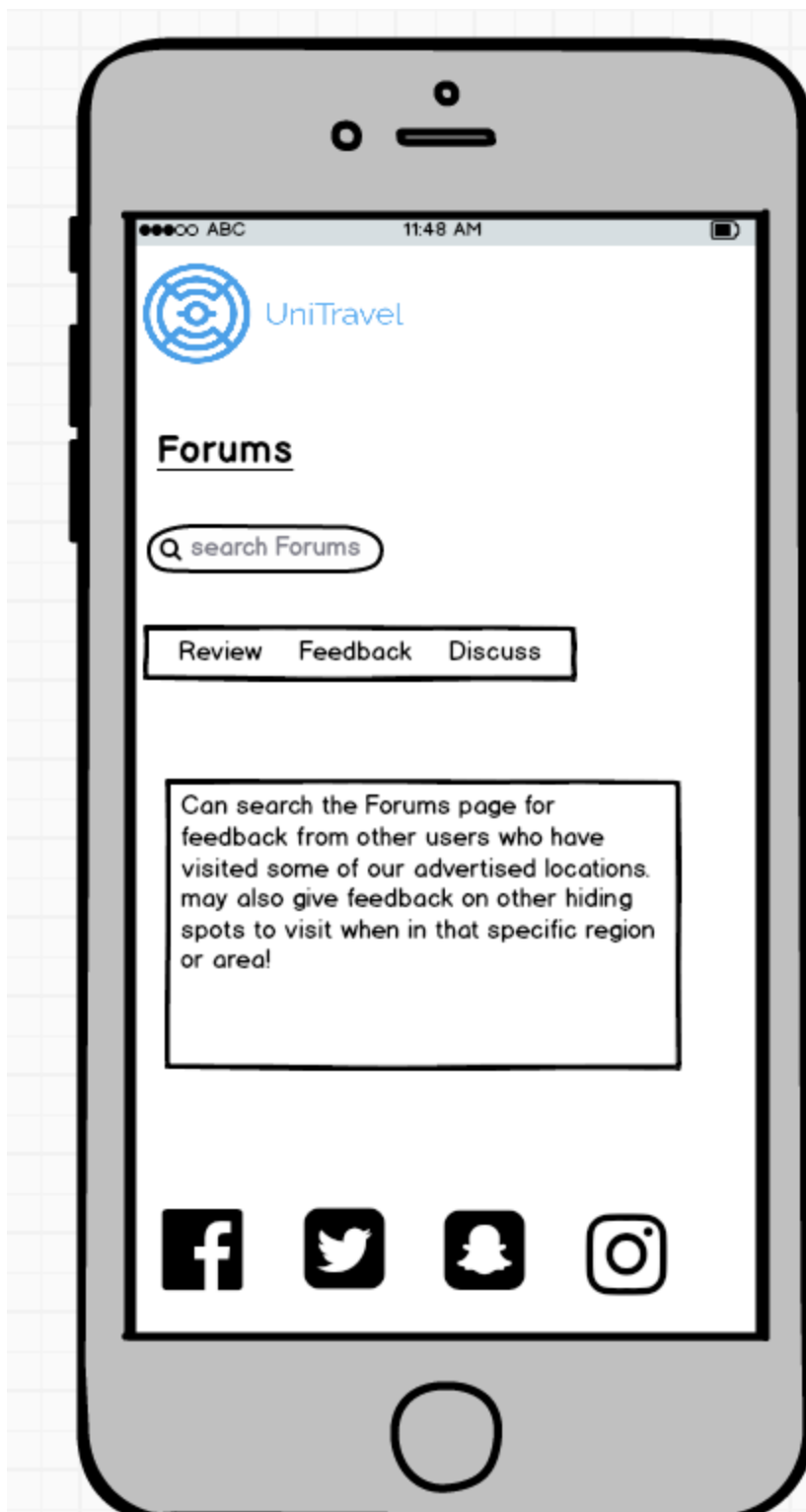
### Account Information



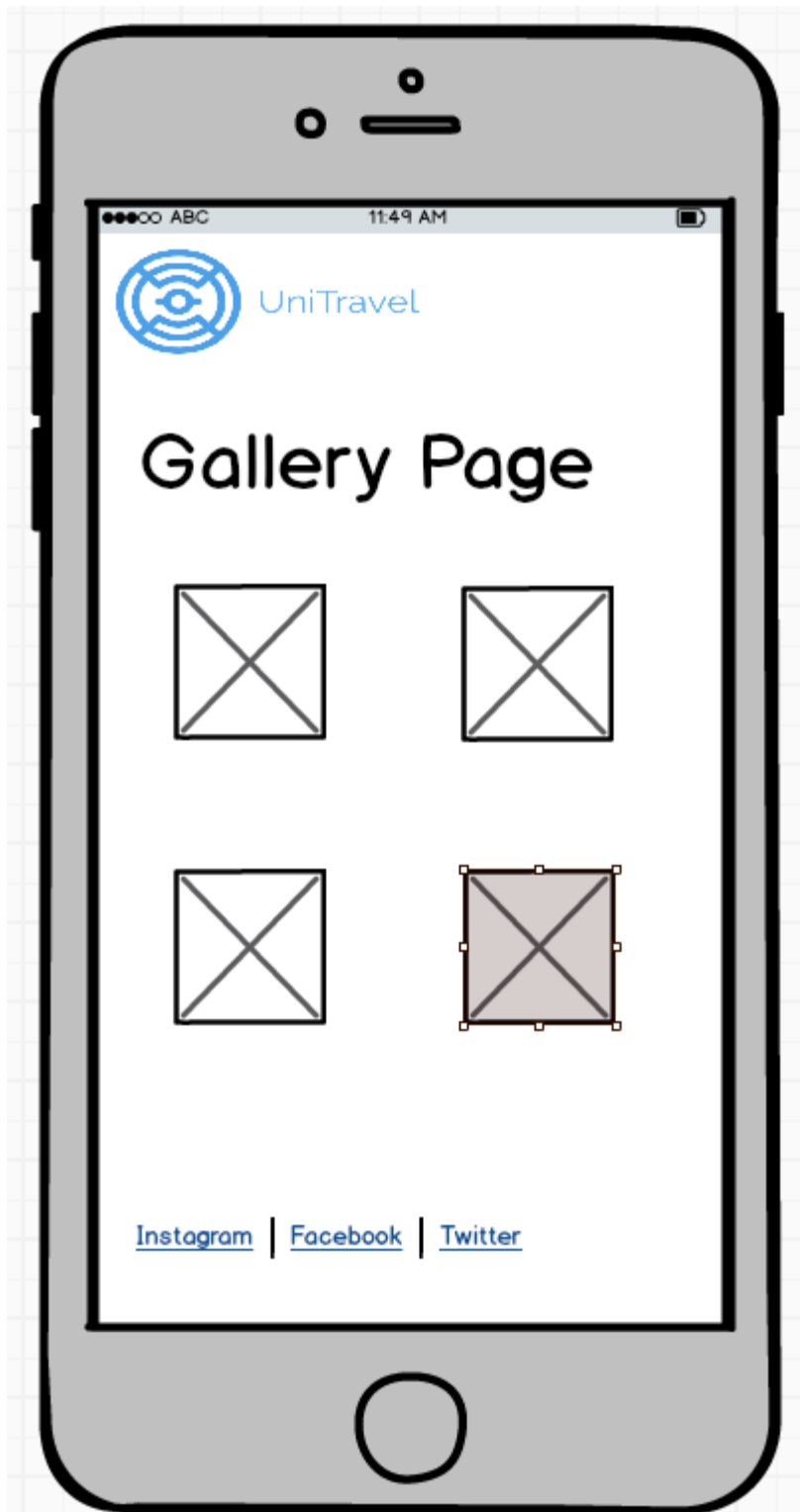
### Social Media Links



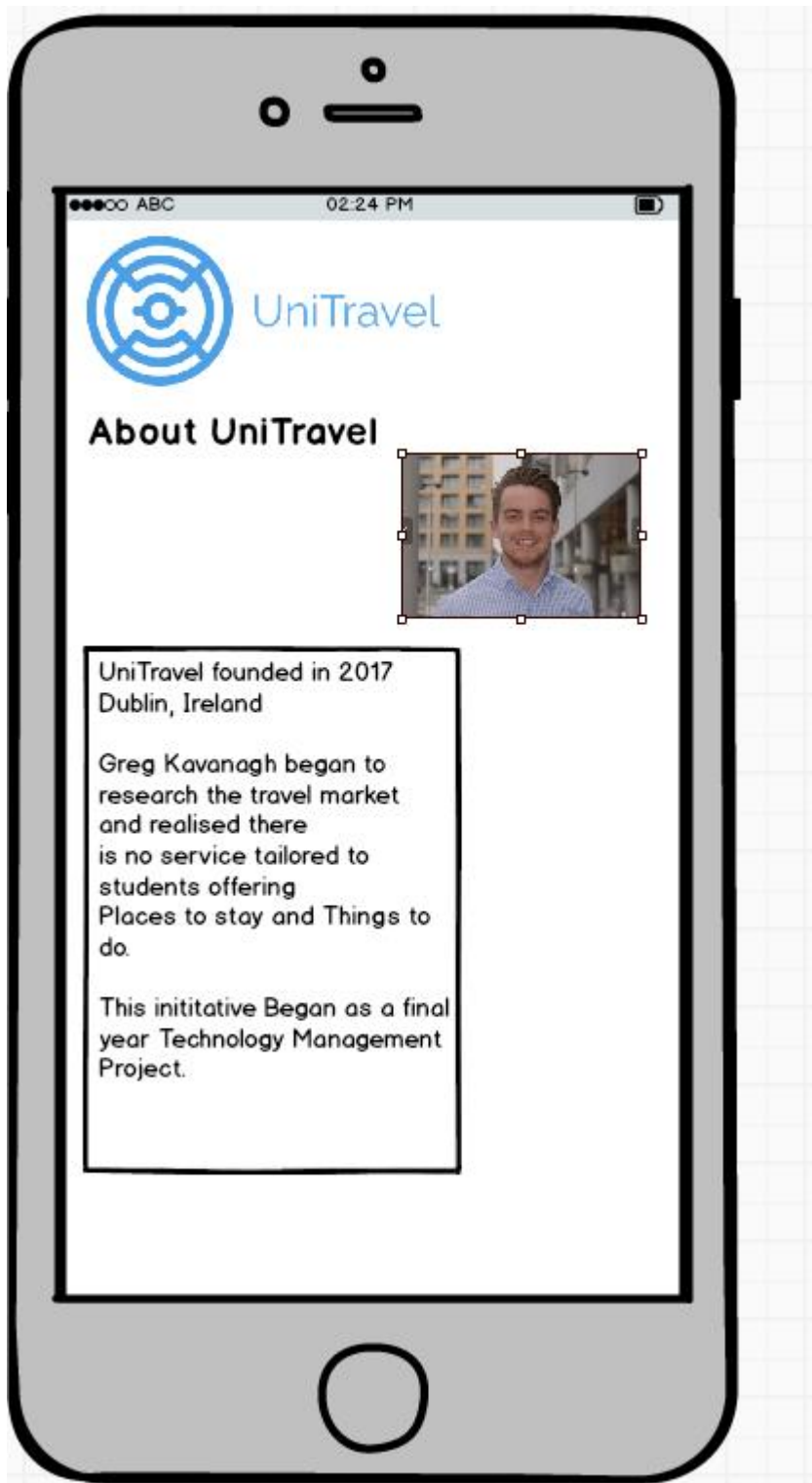


Forums Page

### Gallery Page



## About Page



UniTravel App

Greg Kavanagh x13440288

### 3.5.3 Prototype 2 Conclusion- Report

After the requirements workshop, the version two prototype was created. Many changes and modifications have been made since the version one prototype with a more detailed analysis and requirements gathered from the workshop.

The layout and design were still very basic, so these changes were incorporated into the version two prototype; adding in the UniTravel Logo to each page. Adding in a social media page was essential as so many users will have access to social media apps. Ensuring this page is clearly stated can allow the user to follow and like the UniTravel social media accounts, keeping up to date with any deals and discount we are offering. The home page was updated and it was a lot more appealing and eye catching. Ensuring a user friendly app is essential, this will attract more users to the app, but also ensure users will keep returning to use the app. Adding in the Accounts page allows the user to manage their details carefully. Here they can change their password, update account information, links to social media pages and can log out of the app. Including a travel page will allow to select activities depending on their time in a certain location. The deals & discounts page was updated with a map so users could see what deals would be close by, including a deals of the week box would showcase certain deals that would appeal to the user. A Gallery Page was added showcasing some images from locations across Europe. A recommendations page was added allowing the user to search for a specific activity and the availability of the activity that was selected. The forums page was added giving users the ability to discuss activities, personal experiences when travelling and discuss other events. The version two prototype is a lot more appealing to the eye, and offers a lot of content for the users to go through. I feel the stakeholders will be satisfied with this updated and modified prototype.

### 3.6 Requirements Workshop

This Workshop took place with a select number of stakeholders, after going through the first prototype the stakeholders made a few comments and gave feedback about the design and layout of each page of the app. Being the first prototype it was very basic and the layout still need to be set up correctly. These changes were documented and will be incorporated into the next prototype of UniTravel.

The stakeholders all agreed that they liked how the app was looking, and were satisfied with the direction the design and layout were taking for the version two prototype. The proposed an additional number of features that can be added to the next prototype. One stakeholder proposed a real time weather feature to each region so users can have real time weather updates. It can either be a link, which redirects you to a weather website either weatherspark or Accuweather. Another stakeholder requested to add in a scroll bar offering best deals of the week to users. this will keep users engaged in the app. An Account information page was requested so users could manage their account. A travel page was added allowing the user to select activities that can be done in a certain time frame, the could filter this selection by selecting their favourite cities. Deals & Discounts page was added with a little more detail, including a map so the user could search for. There was also a list of specific deals the user may like.

The stakeholders requested some minor adjustments to be made to the app. The logo should be in the top left corner of each page of the app, social media links should be clearly visible on the bottom of each page with links to the social media pages. The social media page also included images from the gallery or pictures users posted and also images that were provided by UniTravel. The home page should list the benefits of using the app and how it will help to use it when you are travelling. A senior stakeholder suggested the addition of a gallery, this could be a gallery of users who have been to regions or cities that are advertised on the app. There was also a request to add a recommendations page that would have tailored suggestions for the user. These changes and tweaks should be made but they will keep users involved and interaction high in the app.

The stakeholders were satisfied with the inclusion of the forum page within the app. They like the idea of having the boards forum page, it is a basic forum page but so effective and a lot of people use it to find out about anything and everything. The forum page can be used to give additional feedback on places to go, things to do and also it can be used to measure feedback about areas we have offered on the app.

### 3.7 Interface Analysis

#### **Conclusion of the UML Use Case Diagram:**

This diagram showcases the relationship that will exist between the stakeholders of the project and the new UniTravel app. The Stakeholders or actors are placed around the outside of the UML User Case diagram. The arrows are placed around the diagram linking each actor with various cases within the diagram/App. Each actor has at least one of the use case diagrams. For example, the hotel management can review the Forums page of the app to see what kind of reviews and feedback has been left by users who have stayed there, but also to see if there offers are being shown correctly. These actors will not have access to un-necessary or unauthorised use cases in the diagram. If the hotel management can see what kind of deals & discounts are being offered the may look at competitor's prices and look to change their prices, or may put prices up depending on the competition. They may also look at traffic and see why they aren't getting enough business

## 4. IEEE APP REQUIREMENTS SPECIFICATION:

### Purpose

The purpose of the IEEE requirements specification document is to identify the requirements for the UniTracker App. This report will identify the functional and non-functional requirements that the app will have. This must then be approved by the Stakeholders, and if any changes are requested it needs to be the app has been fully developed.

### Scope

This app is being developed for a number of stakeholders. There isn't an app on the market tailored for students to use while traveling. A number of students I've discussed the idea of the app with like the idea and have discussed the need for an app for students.

Users will have the capabilities to look at discounts, places to go, places to stay, activities in their area and a number of other features. There isn't an app on the market like this tailored for students. There will be a forum page to discuss activities and areas to visit, users can give feedback about certain regions and cities. There will be information provided on certain events available to users as well. Further down the line other regions will be added (America and Asia)

### Definitions and Abbreviations

**User:** someone that will use the UniTravel App

**Administrator:** a person that may manage the UniTravel App, but this person will not be the developer of the app.

**Stakeholder:** a person, group or organisation that has an interest in a certain business or organisation.

## 4.1 Functional Requirements

### 4.1.1 User Class one: User

Functional Requirement 1	
Identification Code	FR1
Title	Login
Description	Users will need to enter their email address and a password
Priority	Must Have
Justification	For the user to be successful when logging in their email address and password must be entered successfully.

Functional Requirement 2	
Identification Code	FR2
Title	Register
Description	Once users have created an account they will need to register with the app. The user must enter their email address, password and college they attend.
Priority	Must Have
Justification	Secures the users information within the app, and will also allow the user to avail of the deals and discounts available to students.

Functional Requirement 3	
Identification Code	FR3
Title	Contact page
Description	The contact page will provide users with information of how to get in contact by phone or email.
Priority	Must Have
Justification	Contact information should be easily available to any user in case of issues or any queries the user may have.



Functional Requirement 4	
Identification Code	FR4
Title	Social media links
Description	These social media links will bring users to UniTravel Instagram and Facebook pages. They will be clickable links at the end of each page.
Priority	Must Have
Justification	A lot of users will have access to social media. Adding social media links may also rank the app higher in app stores for smart phones.

Functional Requirement 5	
Identification Code	FR5
Title	Forgotten Password
Description	If the user cannot remember there login details they will have the ability to click the forgotten password link,
Priority	Must Have
Justification	For the user to be successful when logging in their email address and password must be entered successfully. If not the will have the ability to change their password.

Functional Requirement 6	
Identification Code	FR6
Title	Google Map plugin
Description	Google maps is needed for some of the key features of the App. This plugin would be very useful
Priority	Should Have
Justification	This plugin would allow the user to see what discounts deals are available in their area.

Functional Requirement 7	
Identification Code	FR7
Title	Advanced Search
Description	An advanced search will have the ability to filter out some criteria depending on what the user is search for. The user may filter the search for a specific city or region.
Priority	Should Have
Justification	This will quickly allow the user to filer there search for a specific interest or region.

Functional Requirement 8	
Identification Code	FR8
Title	Notification Bar
Description	Notification bar will inform users of deals of the week or other discounts that may interest them.
Priority	Could have
Justification	This is an easy form of communication with users. Notification are an easy way to get relevant information to the user quick. Can be set up on the Home page of the application.

Functional Requirement 9	
Identification Code	FR9
Title	Account Page
Description	This will have the users details, gives them the ability to review it if changes need to be made.
Priority	Must Have
Justification	User must be able to review their information.

Functional Requirement 10	
<b>Identification Code</b>	FR10
<b>Title</b>	Discount Page
<b>Description</b>	This is an important page, especially for students who may have a small budget. Discounts can be selected depending on city or region. The google maps plugin can also be used to view deals and discounts in their vicinity.
<b>Priority</b>	Must Have
<b>Justification</b>	This feature is a top priority and one of the main reasons it will attract users. Getting it working is key to the success of the application.

Functional Requirement 11	
<b>Identification Code</b>	FR11
<b>Title</b>	Review/Forum Page
<b>Description</b>	This will give the users a platform to review activities/cities/regions/places to stay so others can see what they are like and gather feedback for their own use.
<b>Priority</b>	Must Have
<b>Justification</b>	This will keep each user up to date with current events in a city or region. Can also be used to see what discounts and deals are appealing in what regions.

Functional Requirement 12	
<b>Identification Code</b>	FR12
<b>Title</b>	Accommodation/Places to stay Page
<b>Description</b>	Users can search this page for hotels/hostels and Airbnb to stay when they are traveling. They will also have the ability to book in advance. They can either book through the App or click on the link to take them to the website of the hotel/hostel or Airbnb they will be staying in.
<b>Priority</b>	Must Have
<b>Justification</b>	This page is a top priority and one of the main features of the application.

Functional Requirement 13	
<b>Identification Code</b>	FR13
<b>Title</b>	Quick search
<b>Description</b>	This feature allows user to quickly search for a specific topic they may be looking for in the app.
<b>Priority</b>	Could Have
<b>Justification</b>	This feature is quick compared to an advanced search which will be a little more time consuming, this quick search feature is convenient for users.

Functional Requirement 14	
<b>Identification Code</b>	FR14
<b>Title</b>	Group Page
<b>Description</b>	This feature allows user to add friends and selected users to a group page. This can then be used to review different types of accommodation and activities
<b>Priority</b>	Could Have

<b>Justification</b>	This was discussed during an interview with a student who is heading away during the summer. This feature would be used to review different types of accommodation and activities, but there is no need for the group of users to be in the same location as the other locations.
----------------------	---

<b>Functional Requirement 15</b>	
<b>Identification Code</b>	FR15
<b>Title</b>	Events and Trip page
<b>Description</b>	This feature allows user to see what festivities and concerts are available during the summer months May-August. Users can see what festivities will be on during the summer and will they be in a region they are visiting.
<b>Priority</b>	Could Have
<b>Justification</b>	This feature was brought up during an interview with a booking.com employee. It is an area they wouldn't really focus on and would be a go feature to have on the app.

<b>Functional Requirement 16</b>	
<b>Identification Code</b>	FR16
<b>Title</b>	Always logged in/ remain logged in
<b>Description</b>	Allows the user to remain logged in at all times. They had the ability to log out of their account at any time. This feature will reduce load times of accounts.
<b>Priority</b>	Could Have
<b>Justification</b>	Users will have the ability to view a page they had been previously been viewing. This will also reduce the chance of users becoming frustrated with the constant need to log into the app when in use. Maintaining a high level of customer satisfaction is crucial to the success of the business.

<b>Functional Requirement 17</b>	
<b>Identification Code</b>	FR17
<b>Title</b>	Loyalty system

<b>Description</b>	Could look to a loyalty system included for users who recommend to a friend or have used a certain amount of activities
<b>Priority</b>	Could Have
<b>Justification</b>	This feature can be used to bring in more users to the app and will get users to discuss the app with friends.

<b>Functional Requirement 18</b>	
<b>Identification Code</b>	FR18
<b>Title</b>	Recommendation feature
<b>Description</b>	This feature allows a user to recommend a certain place to stay or activity to another user.
<b>Priority</b>	Could Have
<b>Justification</b>	This feature can be used to attract users, but also used to send users recommendations about things that may interest them that they may have missed.

<b>Functional Requirement 19</b>	
<b>Identification Code</b>	FR19
<b>Title</b>	Quick search
<b>Description</b>	This feature allows user to quickly search for a specific topic they may be looking for in the app.
<b>Priority</b>	Could Have
<b>Justification</b>	This feature is quick compared to an advanced search which will be a little more time consuming, this quick search feature is convenient for users.

<b>Functional Requirement 20</b>	
<b>Identification Code</b>	FR20
<b>Title</b>	My Account
<b>Description</b>	Displays all of the users information, gives them the ability to log out and can also log out of social media profiles.

<b>Priority</b>	Must Have
<b>Justification</b>	The user can log out of the app from this point.

<b>Functional Requirement 21</b>	
<b>Identification Code</b>	FR21
<b>Title</b>	Gallery Page
<b>Description</b>	This feature allows users to view different locations and activities that are available.
<b>Priority</b>	Could Have
<b>Justification</b>	Allows the user to review and post photos of locations they have been to from the app.

<b>Functional Requirement 22</b>	
<b>Identification Code</b>	FR22
<b>Title</b>	An area of the home page that will recommend activities depending on the period of time in a certain location
<b>Description</b>	Will give the user a set amount of activities to do in a certain period depending on their time in one location.
<b>Priority</b>	Should Have
<b>Justification</b>	This requirement was gathered during the survey and many users liked the idea of having a set number of activities depending on their time in one location.

#### 4.1.2 User Class Two- Administrator-

<b>Functional Requirement 23</b>	
<b>Identification Code</b>	FR23
<b>Title</b>	Admin Login
<b>Description</b>	The admin has the ability to log in to the app. Only admin has access with these specific sign in details

<b>Priority</b>	Must Have
<b>Justification</b>	Admin is required to make any necessary updates and changes on the app. The updates may consist of updating activity list, the accommodation list, events during the summer months and new deals and discounts.

<b>Functional Requirement 24</b>	
<b>Identification Code</b>	FR24
<b>Title</b>	Admin has the ability to edit.
<b>Description</b>	At the request of the business owner the admin may need to edit descriptions within the app.
<b>Priority</b>	Must Have
<b>Justification</b>	Gives the administrator the ability to edit descriptions and details within the app. Some features like prices, discounts, deals may need to be edited regularly.

<b>Functional Requirement 25</b>	
<b>Identification Code</b>	FR25
<b>Title</b>	Admin manages user accounts.
<b>Description</b>	The admin may need to unlock, remove or delete user accounts
<b>Priority</b>	Must Have
<b>Justification</b>	Administrator will need to edit user accounts in case they are either locked out, no longer active on the app or request that there profile be removed.

<b>Functional Requirement 26</b>	
<b>Identification Code</b>	FR26
<b>Title</b>	Admin will upload to the gallery page



<b>Description</b>	Admin will need to upload images to the gallery page.
<b>Priority</b>	Must Have
<b>Justification</b>	Administrator will upload pictures to the gallery and activities page.

<b>Functional Requirement 27</b>	
<b>Identification Code</b>	FR27
<b>Title</b>	Send push notifications- email and pop ups
<b>Description</b>	App should send notifications to user accounts by email or in app pop ups
<b>Priority</b>	Should have
<b>Justification</b>	Gathered from student surveys. Allows the user to be kept up to date with the latest deals and discounts.

<b>Functional Requirement 28</b>	
<b>Identification Code</b>	FR28
<b>Title</b>	Weather plug in
<b>Description</b>	User will have the ability to see what weather will be like in a region they are visiting.
<b>Priority</b>	Must Have
<b>Justification</b>	User has the ability to have an in app weather forecast. Gathered from the requirements workshop.

<b>Functional Requirement 29</b>	
<b>Identification Code</b>	FR29
<b>Title</b>	Availability of a certain activity or place to stay.

<b>Description</b>	User has the ability to check the availability of a certain place to stay or activity.
<b>Priority</b>	Should Have
<b>Justification</b>	Allows the user to plan according to specific activities and book certain accommodation.

<b>Functional Requirement 30</b>	
<b>Identification Code</b>	FR30
<b>Title</b>	Categorised on the travel page.
<b>Description</b>	User has the ability to select a set number of activities depending on the duration they will be staying in a specific location.
<b>Priority</b>	Must Have
<b>Justification</b>	Allows the user to search through a number of preselected activities depending on the duration of their stay in one location. This was gathered during the survey.

<b>Functional Requirement 31</b>	
<b>Identification Code</b>	FR31
<b>Title</b>	Location of selected activity/deal/place the user will be staying.
<b>Description</b>	When on the map page the user should be able to see the distant and estimated time and distance to that location.
<b>Priority</b>	Must Have
<b>Justification</b>	Allows the user to see what will be the best mode of transport to the location. Should pop up once the location has been selected.

<b>Functional Requirement 32</b>	
<b>Identification Code</b>	FR32
<b>Title</b>	Filter Price.
<b>Description</b>	Gives the user a filter depending on their duration away.

<b>Priority</b>	Must Have
<b>Justification</b>	Gathered from the survey. Allows the user to filter cost depending on their budgets.

<b>Functional Requirement 33</b>	
<b>Identification Code</b>	FR33
<b>Title</b>	Search activity page
<b>Description</b>	User can search the activity page depending on what they would look to do.
<b>Priority</b>	Must Have
<b>Justification</b>	Allows users to find activities quickly

<b>Functional Requirement 34</b>	
<b>Identification Code</b>	FR32
<b>Title</b>	About Page
<b>Description</b>	Gives a brief description of UniTravel
<b>Priority</b>	Must Have
<b>Justification</b>	Gathered during the requirements workshop and display information about UniTravel.

## 4.2 Non-Functional Requirements

### 4.2.1 Usability Requirements

Non-Functional Requirement 1	
Identification Code	NF1
Title	Login Credentials
Description	Once the user logs in correctly the app should take no longer than 15 seconds to load, a message should display notifying them if their login was successful or unsuccessful. This will bring the user to the homepage or if unsuccessful ask them to re-enter their login credentials.
Priority	Must Have
Justification	There shouldn't be any delay when a user attempts to login in successfully or unsuccessfully.

Non-Functional Requirement 2	
Identification Code	NF2
Title	Loading Time
Description	App Should have pages loaded in less than 1 second with the latest IOS and Android software.
Priority	Must Have
Justification	Need to ensure users get content quickly and there is no wait time involved.

Non-Functional Requirement 3	
<b>Identification Code</b>	NF3
<b>Title</b>	Navigation/layout
<b>Description</b>	UniTravel must be easy to navigate for users. Making sure each page has the correct layout is crucial, each page should contain enough information; but making sure there isn't a case of information overload on each page. If so it will not be appealing to users.
<b>Priority</b>	Must Have
<b>Justification</b>	UniTravel would be pointless without easy navigation. Making sure each page is labelled and layout correctly.

Non-Functional Requirement 4	
<b>Identification Code</b>	NF4
<b>Title</b>	Logout feature
<b>Description</b>	The user has the ability to log out of the app. This should take no longer than 10 seconds.
<b>Priority</b>	Must Have
<b>Justification</b>	Slow speed will create frustration for users. The user should have the ability to logout of the app immediately.

### 4.2.2 Scalability Requirements

Non-Functional Requirement 5	
Identification Code	NF5
Title	Cross Platform capability
Description	The app will be created for apple and android and must be easily available in both app stores
Priority	Must Have
Justification	Creating a cross functional application will reduce the development time and will cost less also.

Non-Functional Requirement 6	
Identification Code	NF6
Title	Logo
Description	The Logo must be displayed in the top Left hand corner of each page.
Priority	Must Have
Justification	Logos are used to identify with a company's brand. With a logo the brand will be more recognisable to users and may attract potential users.

### 4.2.3 Security Requirements:

Non-Functional Requirement 7	
Identification Code	NF7
Title	Password standards
Description	The user's password must contain a minimum of 8 letters, 1 uppercase letter and at least 1 special character. Password will appear in the app as asterisks at all times.
Priority	Must Have
Justification	Users will use the same password for multiple websites and applications. Having a strong password policy in place will act as another layer of security protecting user accounts against potential hackers.

Non-Functional Requirement 8	
Identification Code	NF8
Title	User Data is stored correctly.
Description	Ensuring all user accounts details are stored safely.
Priority	Must Have
Justification	Essential for maintaining a high level of users and overall satisfaction.

Non-Functional Requirement 9	
Identification Code	NF9
Title	Data integrity

<b>Description</b>	If the user has a login failure, the password and email address must be wiped so the user can attempt to login in again.
<b>Priority</b>	Should Have
<b>Justification</b>	Essential for data protection.

<b>Non-Functional Requirement 10</b>	
<b>Identification Code</b>	NF10
<b>Title</b>	Freemium feature
<b>Description</b>	UniTravel is a free app for students, but a freemium feature could be added later on. This feature may attract more potential users.
<b>Priority</b>	Could Have
<b>Justification</b>	Adding this feature may attract more companies to the app.

<b>Non-Functional Requirement 11</b>	
<b>Identification Code</b>	NF11
<b>Title</b>	Discount available from all stores.
<b>Description</b>	The user has the ability to log out of the app. This should take no longer than 10 seconds.
<b>Priority</b>	Won't
<b>Justification</b>	Unfortunately, all stores will not have discounts available for students.



Non-Functional Requirement 12	
<b>Identification Code</b>	NR12
<b>Title</b>	Contact Forum
<b>Description</b>	when a user send an email to the app they should be notified that there query was received and that someone would get in contact with them as soon as possible
<b>Priority</b>	Should Have
<b>Justification</b>	This feature should let users know that their query has been received and that someone will be in contact with them as soon as possible. Making sure these queries are handled correctly will reduce any issues with customer satisfaction.

Non-Functional Requirement 13	
<b>Identification Code</b>	NR13
<b>Title</b>	Terms and conditions.
<b>Description</b>	
<b>Priority</b>	Should Have
<b>Justification</b>	This feature should let users know that their query has been received and that someone will be in contact with them as soon as possible. Making sure these queries are handled correctly will reduce any issues with customer satisfaction.

## 5. Appendices

### 5.1 Project Proposal:

UniTravel is a mobile application for students to use when abroad while traveling or at home. It has a host of features, offering student deals & discounts, student friendly accommodation and other activities to do. Having all of this student friendly information in one app will relieve stress and ensure you have the best possible experience.

#### 5.1.2 Objectives

My final year project, the overall objective is to create a detailed document that includes my requirements specification, the technologies I will use to create and how they will be used to develop it. This will be an application for students who are traveling around to different countries and cities, it will give a list of things to do, places to visit and different activities that can be done.

My first objective is to identify my main stakeholders that will be involved, they will vary from students who will use the app, hostels, museums, local governments, Student events to IT developers and IT specialists. Once I have listed out my main stakeholders I shall begin listing out my main requirements elicitation techniques such as interviews, surveys, brainstorming and student questionnaires. Another key objective is to show how the app would benefit student users, I must identify the functional and non-functional requirements, as well as the business requirements for the travel App.

Having then gathered all of my requirements, I will then go over the requirements with the stakeholders that the requirements listed out have been met. An important objective is time management, this will be critical as I will need to delegate time to my other modules and projects. Setting certain deadlines for my project will be essential to making sure I am on top of the work and not leaving a lot of work till the very last minute. I plan to meet with my Project Supervisor regularly to go over the work that has been completed, but also take on any feedback they may have given.

The objective of the app is to allow a user who is traveling to find a certain place to stay, and other activities to do, it will also show different activities to do that may not be available in another city or region. This app will be able to students as it will list student rates for places to stay and things to do.



### 5.1.4 Technical Approach-

**Research-** Looking at competitors on the market to see what could separate my application to the rest, find the niche. Gather input from student who have been traveling and who plan to go away. Research Student and travel websites to see what kind of deals and offers they may have to attract students. Consult with Students who have been away interrailing to see how I can Appeal to users, set out a list of objectives that would pull a user to the app. I will also use BABOK to help with gathering certain requirements, it's a very beneficial book as it goes into huge detail about all requirements and how they can be gathered.

**Capture-** Keep the project realistic and don't set unreachable goals for the app straight away.

Requirements are:

- Interview with Travel website, discuss the market
- Activities to do in local city/region
- Use word and excel to document my research
- Mockflow & Balsamiq Mockups
- Surveys, questionnaires
- Google forms

Nice to have:

- Digital copy of travel tickets (train ticket etc.)
- Constant updates
- Timer to notify of train times/ flight times- 2-hour window
- Feedback/ reviews from cities and locations

Wordpress, Mockflow Charts, Requirements Capture, Implementation of the requirements gathered,

### 5.1.5 Resources Required-

- Wordpress
- Mockflow charts & Balsamiq Mockups
- Requirements review
- iPhone & Android Phones
- I will need to research design of mockflow and how to use WordPress
- Lecturer & Supervisor feedback/ changes that could be made
- Certain books from the library
- MacBook laptop
- YouTube videos
- IEEE guide for requirements
- IEEE requirements document template
- Squarespace or Wix possibly
- Feedback forms from students who have been traveling
- Dropbox and google drive to backup files
- BABOK and Business Analysis Techniques
- I will use all the resources available to further my skills while developing the application

### **5.1.6 Technical Details**

I plan to use WordPress to make a website for the Travel app, I plan to use mockflow to develop smart phone wireframes for android and Apple devices. I've looked up a few videos on how to build basic wireframes, I've used Balsamiq Mockups before for other assignments, I will design wireframes on both and I'll decide on which wireframes to use at my mid-point mock presentation. These Wireframes will be finalised after my full list of requirements have been gathered and reviewed.

### **5.1.7 Evaluation**

To evaluate this project, I will be using a number of elicitation techniques for my requirements specification document. My techniques may include the following; interviews, surveys, brainstorming, questionnaires, workshop with people who have been interrailing or other key stakeholders. Other technical requirements can be used such as document analysis, implementing these techniques will give me a great foundation to work from. The majority of the project information can be added once the requirements are met and reviewed, I will then put together a mock presentation for my supervisor, to practise, gather

feedback and also make any needed changes. After the mid-point presentation, I plan to meet with my stakeholders regularly to review the requirements I have gathered, this is to reduce the chance of leaving out an important requirement, this will be in the final document. I will meet with my supervisor regularly at this point to show the changes I have implemented for the application or what work has been done.

### **5.1.8 Background for App**

For my final year project, I was tasked with creating an IT application. I was encouraged to be creative and think outside the box for my project. I looked at a number of areas and decided to focus on an area that interested me.

I have always loved to travel and it's been an area that has always interested me. I've been on a number of different trips from a J1 to InterRailing across Europe. I realised that there isn't an app on the market tailored for students. I decided to go with this idea from my own personal experiences.

While travelling I realised that there isn't an app on the market for students to use to find activities to do, places to go and do they have the ability to use student discounts while travelling. Many students still have to use a number of different sites or even gather information by word of mouth to gain knowledge about a region or activity. Discussing my idea with a number of friends and family, the issues raised were about the travel market and would the app succeed. I explained the idea and the plan to focus on students, many of my friends liked the idea of having student deals listed from different cities and regions was appealing to anyone I had discussed the application idea with.

After doing extensive research online checking websites and smart phone app stores, I learned that there was no application out there that offered the features I wanted to include. I discussed the idea with an employee of booking.com and discussed some of the features I planned to include; they brought up issues about getting into the market but liked the idea of it being tailored for students as it was a demographic they hadn't really tapped into. Having all of this information in one application can give people better control and choices when traveling. Up to 85% of people use smartphones to look up and book a trip, having everything in one application would be very convenient for users. Nowadays mainly students rely on their smartphones to book and keep track of events when traveling. The App would appeal to hostels, hotels and businesses that would offer student deals. If the Travel app is user friendly and easy to navigate it would be very popular with students.

## 5.2 Reflective Journals:

### 5.2.1 Reflective Journal for September

**Student:** Name: Greg Kavanagh

**Course:** BSc in Technology Management

**Month:** September

This month was the return to my final year of college and the beginning of my final year project. I had been thinking of a few ideas and asking within my work place where I completed my work placement about ideas and feedback about certain ideas. I had mulled over a few ideas but decided to focus on a travel aspect and decided to develop an app. I think the idea was worth pursuing as it would have multiple features in one application compared to surfing the web for deals. I would focus in on hostels and things to do, to make the App appealing I would focus in on a push/pull factors. I believe the App would definitely appeal to student travellers.

I decided on this topic as there is nothing on the market that would offer deals and discounts for students in one place, as from my own point of view traveling through Europe you would need to look up and review numerous different websites and it can become very stressful. I asked people I know did what they thought of the idea, and many people approved and could see the benefit especially when traveling. I began to prep for my project pitch and began my new modules for the semester as soon as I got back for my first week of lectures I knew it would be a stressful year with a big workload, Time management would be crucial; breaking up assignment work, part time work and my social life. I knew from attending the project classes that I had to stay on the ball with work and meeting deadlines.

I'm very hesitate about how the year will go I know that if I remain on top of the work I should be fine.

Overall, I felt I started in a good position and had a schedule and plan in my head. From asking previous students and how they coped with the project work, other modules and how to manage the time for each module and the project. I began prepping for my project pitch and went through a brainstorm to see what I should include.

### 5.2.2 Reflective Journal for October

**Student:** Name: Greg Kavanagh

**Course:** BSc in Technology Management

**Month:** October

My pitch had been set for the 2<sup>nd</sup> of October, I researched my topic a little more in depth so I would be covered for any questions the panel may have. Unfortunately, the weekend before my proposal I was ill and didn't get to go over my headings and other information I had prepared for the pitch. My pitch wasn't well received and found a few flaws and problem areas in my idea, I was a little upset but knew I hadn't prepared in full for the pitch. I went to Eugene with a refined idea which would focus in on student traveling, we discussed a few topics and ideas for the app and it was approved.

My main focus was staying on top of the workload, I enjoyed having the weekly scrum meetings for requirements Management as the work would be completed on a weekly basis. I found it very beneficial as I just chipped away at the workload for this module, I kept on top of my other assignments.

I began work on my proposal which was due the 27<sup>th</sup> of October, I started working on it after my idea had been approved, I listed out the main objectives of my project, I identified the key stakeholders who would be involved. With the Gantt chart I gave a breakdown of the work that shall be completed. It was challenging to create the Chart and structure chart as it was my first time using Microsoft Project as I didn't really know all of the tasks that I will need to complete for the project.

I was also assigned my project supervisor Dermot Killen. I met him on the 27<sup>th</sup> of October, and went through my pitch and plan out what I will be doing in the coming months. I plan to have a mock presentation with Dermot just to practise and make tweaks to the presentation before the Mid-point presentation

Overall I wasn't really happy with how the pitch went but knew what had to be done to make improvements. I set out a plan on how to manage the work load for the month with assignments and tests. I couldn't let this setback upset me and it was only the start of the year and I'm glad I got the constructive criticism at the start of the year instead near completion of my project.



### 5.2.3 Reflective Journal for November

**Student:** Name: Greg Kavanagh

**Course:** BSc in Technology Management

**Month:** November

During this month I have developed my requirements elicitation. I have been in contact with a number of key stakeholders, I have given feedback to them and made any changes that needed to be made. I have been in contact with a few developers and engineers about conducting interviews a date has yet to be set. I have been in contact with an employee who works in booking.com, this may be conducted in the new year as we are into the final stretch of the college semester so deadlines are approaching and work has to be delegated accordingly.

I have set a date for a brainstorming session with five other individuals, the date has been set for 14<sup>th</sup> of November. I must submit my Preliminary Requirements Specification; This document is due on the 24<sup>th</sup> of November. This document includes:

- Business Case
- Business Need
- Stakeholder List
- Requirements Elicitation Techniques
- Interface analysis
- Document Analysis
- Acceptance and Evaluation Criteria

During November, I will need to gather my requirements with elicitation techniques such as surveys, interviews focus groups and brainstorm. I must come up with my survey questions and will go through them with my supervisor to gather any feedback and make any needed adjustments. I plan to run a pilot group for my survey to gather some initial feedback. I am satisfied with how the project has progressed so far, and I have not run into any issues as of yet. I submitted my project proposal at the end of October. I have a list of potential candidates to interview, I'll review this list with my supervisor to see what candidates are not applicable. Once this list has been reviewed with my supervisor I will get in contact with the candidates and try to arrange suitable dates for my interview. Discussing interviews with my supervisor I plan to have at least one completed before the end of December. I will I plan to send my survey out over December or into the new year.

Overall I was happy with my progress during the month of November, I was happy with the work I had completed, I broke up the requirements elicitation document into a few parts so I wouldn't have it all to do at once. Deadlines for assignments are approaching quick so I've to stay on top of the workload.

### 5.2.4 Reflective Journal for December

**Student:** Name: Greg Kavanagh

**Course:** BSc in Technology Management

**Month:** December

The end of November and into December were extremely busy meeting deadlines and finishing up assignments. I had deadlines for the rest of my modules but I planned for this in my work breakdown structure. The requirements elicitation was uploaded at the end of November, and I was happy with the document I had submitted; so the focus was now on the mid-point. My mid-point presentation was scheduled for the 11<sup>th</sup> of December, I was happy with this as it gave me enough time to prep the presentation and make any adjustments that may have been needed.

My presentation outlined the business case, the need, approach and the plan. I meet with my supervisor the week before the presentation to go over the layout of the presentation and get any feedback my supervisor had. I was happy with the feedback and made the needed changes. I went over in a few more times until my presentation date on the 11<sup>th</sup> of December.

Overall I was happy with how the presentation went, I was a little nervous at the start of the presentation but once I got into the swing of it I was happy. The questions asked by the panel I feel I answered well.

I have an interview for my project with a developer set for the 22<sup>nd</sup> of December, I conducted the interview over skype and also sent the questions onto the developer. I also got my survey approved and tested it on a small group of five people to see what kind of feedback I would get back. I plan on sending my survey out after my exams.

After Christmas and heading into January my main focus will be on studying for my exams and will then continue work on my project after my exams and into the college break.

### 5.2.5 Reflective Journal for January

**Student:** Name: Greg Kavanagh

**Course:** BSc in Technology Management

**Month:** January

January was a month where my attention was on my exams. I had five modules each with an exam, this was my main focus until the 12<sup>th</sup> of January. After that I would go back to project work.

I planned to conduct another interview during our week off but it fell through at the last minute and has been rescheduled for the middle of February. We returned to lectures on the 22<sup>nd</sup>, I plan to meet my supervisor our first week back. I got my survey out during my time off.

Overall I was happy with how my exams went as I put in a good amount of work into my studies. I was a little unhappy with the amount of work I put into my project over the break. I took my foot off the gas and didn't get as much done as I planned out. I have done out a plan to stay on track with the rest of my assignments and project work, and I've set weekly goals for my project. I was happy to get a brainstorming session completed.

### 5.2.6 Reflective Journal for February

**Student:** Name: Greg Kavanagh

**Course:** BSc in Technology Management

**Month:** February

February was a slower month, after exams I was getting back into the swing of lectures and continuing on with project work. I completed my interview that was rescheduled during January with a student and got more feedback on the project idea. I feel I got valuable feedback from this interview as it was giving me different feedback compared to my first interview with a different developer. I plan to interview another student who is planning to head abroad in the coming weeks and also the employee from booking.com. I should be able to gather good feedback from these two sources and it should help me gather my requirements for the application. Good to get the version one prototype finished up.

Overall I wasn't too pleased with the work I had completed, it was tough to get back into the swing of classes. This semester wasn't as full on as semester 1, we weren't in nearly as much and my project work slacked a little. I preferred the structure of semester 1 as it allowed me to put a plan in place and I kept up to date with the work compared to this semester so far. I plan to set out a list of weekly tasks and objectives I want to complete in order to stay on top of the project and my modules.

### 5.2.7 Reflective Journal for March

**Student:** Name: Greg Kavanagh

**Course:** BSc in Technology Management

**Month:** March

March was a productive month. I began to draft up my list of requirements from the elicitation techniques that had been used. I was also working on assignments for my two modules business Process Management and Agile Project Management, exams for these two modules slowly began to creep up on me and a study plan had to put together so I wouldn't lose track of my project. I also completed the requirements workshop on the 10<sup>th</sup> of March, it was good to get feedback on the version one prototypes. This was a good experience getting good feedback on the prototypes.

Overall I was satisfied with the feedback I got during the requirements workshop, I feel the version one prototypes were a little basic and knew I had a few more mockups to add in. drafting up the requirements began a little slow but once I got in the swing of it I was ok. I interviewed another student who was heading abroad. Good to get the workshop completed and then finish up version two prototypes. Was good to get A UML completed also.

### 5.2.8 Reflective Journal for April

**Student:** Name: Greg Kavanagh

**Course:** BSc in Technology Management

**Month:** April

I had to continuously work on my project up until the end of lectures then, the project would be put on hold to study for exams. I began to get a little stressed early on for these final two exams as it was the last of my college exams during my time in NCI. I also wrapped up my final interview with an employee at a travel website, it was a good experience and the feedback was good

Overall I felt I was on track and the work was progressing ok, I knew that I would have to stay on top of it with my final exams creeping up. I was glad to have completed my final interview. I delegated the work well and knew I was on the home straight.

## 5.3 Validation Email:



Below is a list of requirements gathered during our brainstorming session on the 22nd of January in regards to the UniTravel app.

- 1) Name of the App- UniTravel, StudentTraveller, UniTraveller
- 2) Home Page
- 3) Registration features
- 4) Code Scanner- Qr code capabilities
- 5) Forums Page- discussion page for users
- 6) Number of Pages- available pages the user can access
- 7) Layout and Design-Simple but effective interface
- 8) Filter- User can filter depending on the budget
- 9) Gallery- Gallery page that have a number of images from our advertised locations.
- 10) Group- group feature can be set up.

Are you happy with the above requirements?

I would like to thank you for your participation during the session.

Kind Regards

\*\*\*



to me 

Hi Greg,

Yes i am happy with the list of requirements gathered from our session.  
If you have any more queries email me i will happily give you a hand.

Cheers,





Just a quick email to go over the requirements gathered from our interview on the 22nd of December.

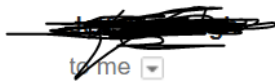
- 1) Admin Creditinals
- 2) Password standards
- 3) Map plug in
- 4) Development features/costs
- 5) My Accounts page
- 6) Security measures
- 7) Risk Management

Are you happy with these requirements?

Thanks again for taking the time to accept my interview.

Kind Regards

\*\*\*




to me ▼

Hi Greg,

Good to hear from you again! Hope all is well.  
Yes i am more than happy with those requirements as we discussed.

Many Thanks



## 5.4 Website Link:

<http://studenttravelapp.com/>

## 5.5 Poster Link:

<file:///C:/Users/TEMP/Downloads/Poster%20for%20Final%20Year%20Project.pdf>

## 5.6 Evaluation:

Overall I was happy with the elicitation techniques I had used, but I would have liked to include a document analysis and conducted a focus group. I was a happy to have gotten a pilot done of my survey to gain some initial feedback.

Firstly, I feel the most un-effective technique I used was the survey, there was no face to face interaction and getting any follow up information was challenging.

Secondly, I would have liked to have gotten a working prototype up after the requirements workshop.

The other techniques I used were very effective at gathering all of the information I required, but also gave me feedback I didn't plan on receiving. The interviews and workshop were probably the most rewarding in terms of feedback and information.



## 5.7 Bibliography:

### AMAZINGLY SIMPLE GRAPHIC DESIGN SOFTWARE – CANVA

**In-text:** (Canva.com, 2018)

**Your Bibliography:** Canva.com. (2018). *Amazingly Simple Graphic Design Software – Canva*. [online] Available at: <https://www.canva.com/>

### Business Analyst | 3 Steps to Conducting Requirements Workshops

**In-text:** (Thomas, 2018)

**Your Bibliography:** Thomas, M. (2018). *Business Analyst | 3 Steps to Conducting Requirements Workshops*. [online] Interface Technical Training. Available at: <https://www.interfacett.com/blogs/three-steps-to-conducting-requirements-workshops/>

### FAMUYIDE, S. AND FAMUYIDE, S.

Organizing Effective Requirements Workshops: Before, During & After

**In-text:** (Famuyide and Famuyide, 2018)

**Your Bibliography:** Famuyide, S. and Famuyide, S. (2018). *Organizing Effective Requirements Workshops: Before, During & After*. [online] Business Analyst Learnings. Available at:

### GUIDE TO THE BUSINESS ANALYSIS BODY OF KNOWLEDGE

**In-text:** (Guide to the business analysis body of knowledge, 2015)

**Your Bibliography:** Guide to the business analysis body of knowledge. (2015). 3rd ed. Toronto: Ontario: International Institute of Business Analysis.

### HOW MOBILE APP IMPACTS ON TRAVEL AND TOURISM INDUSTRY | GOODWORKLABS

**In-text:** (GoodWorkLabs: Mobile App and Software Product Development 2016, 2017)

**Your Bibliography:** GoodWorkLabs: Mobile App and Software Product Development 2016. (2017). *How Mobile App Impacts on Travel and Tourism Industry | GoodWorkLabs*. [online] Available at: <https://www.goodworklabs.com/how-mobile-app-benefits-travel-and-tourism-industry/>

### NEIDLINGER, J. AND NEIDLINGER, J.

4 Simple Brainstorming Techniques To Help Write Killer Content

**In-text:** (Neidlinger and Neidlinger, 2018)

**Your Bibliography:** Neidlinger, J. and Neidlinger, J. (2018). *4 Simple Brainstorming Techniques To Help Write Killer Content*. [online] CoSchedule Blog. Available at: <https://coschedule.com/blog/brainstorming-techniques/>

### STAKEHOLDER ANALYSIS TEMPLATE - 6+ FREE WORD, EXCEL, PDF DOCUMENTS DOWNLOAD | FREE & PREMIUM TEMPLATES

**In-text:** (Template.net, 2017)

**Your Bibliography:** Template.net. (2017). *Stakeholder Analysis Template - 6+ Free Word, Excel, PDF Documents Download | Free & Premium Templates*. [online] Available at: <https://www.template.net/business/word-templates/stakeholder-analysis-template/>

### WORDPRESS.COM: CREATE A FREE WEBSITE OR BLOG

**In-text:** (WordPress.com, 2018)

**Your Bibliography:** WordPress.com. (2018). *WordPress.com: Create a free website or blog*. [online]  
Available at: <https://wordpress.com>

## **10 ESSENTIAL BUSINESS REQUIREMENTS GATHERING TECHNIQUES**

**In-text:** (Brighthub Project Management, 2018)

**Your Bibliography:** Brighthub Project Management. (2018). *10 Essential Business Requirements Gathering Techniques*. [online] Available at: <https://www.brighthubpm.com/project-planning/60264-techniques-used-in-business-requirements-gathering/>