

Initial Design Proposal

COSC368 Humans and Computers

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Andrew Spearman (11699839)

Braden Alsford (14745166)

Eoghan Roberts (19051533)

Matt Belworthy (11030423)

Patrick Ma (65080977)

Executive Summary

As software engineering and computer science students we have almost exclusively focused on the technical implementation; concerning ourselves with maintainability, efficiency, and extensibility. We have therefore neglected to contemplate the other side of the product: user needs. This project allowed us to build empathy and experience user-centered design. To do so we focused on designing an application which helps students connect by creating, advertising, and finding events to attend together.

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Introduction

Projects are driven by the user needs and identified site objectives from within the organization (Garrett, 2002). As this is a crucial part of the contextual design process, for the purposes of this project a fake company was constructed in order to derive the site objectives. Our company was characterized to be a small startup company with its highest priority being to break into the market.

We explored a number of problem spaces and found that university students in New Zealand often encounter obstacles when attempting to schedule get togethers and other hobby-related events. Consequently, the mission of this project was to provide a platform for young adults to organize events; with values of openness, connectedness, and community. Pursuant to this mission we made the main objective to enable community growth by providing a tool which allowed events to be easily created and managed.

Problem Space Research

Effective Virtual Communication

Communication is essential for romantic, professional and friendly relationships. Non-verbal behaviour is an essential component of effective communication and ranges between 60% to 90% depending on the situation (Eastman, n.d.). Technology should better incorporate non-verbal elements to empower effective communication. The ability to communicate long distances with virtual reality would prevent any meaning lost by the tool used to convey the message. This would be far more effective than phone calls which only allow the verbal communication.

Video calling is an example of a technology which allows conveying both the verbal and non-verbal components of communication. However, this market has already been well established and dominated by companies such as Facebook and Skype. In turn, our company has instead investigated the relatively young market of virtual reality. Existing competitors are Facebook Spaces and Steam VR chat. Both allow users to control an avatar and communicate within a mixed reality environment. However, the low fidelity avatars are inadequate to convey the facial expressions and body positions seen in human interactions. Despite this opportunity to improve on the existing products, the high cost of innovating and developing in virtual reality will restrict our company from entering the market.

Public Restrooms

New Zealand is a popular tourism destination which has caused an epidemic of “freedom campers”. Kevin Sampson, from Otago Daily Times, has reported that camping ground regulations require that a “licensed camping ground must provide toilets, showers, hand basins, cooking and dishwashing facilities, and laundry facilities...plus solid waste disposal”.

This results in higher fees compared to “providing only a parking site, toilets, and waste disposal”. The higher fees have resulted in an influx of tourists preferring to travel as ‘freedom campers’ in vehicles. Kevin Sampson continues to explain that due to “bad waste disposal habits of some” campers have lead to waste being left in public. This could potentially be solved by providing tourists a more convenient way to discover public restrooms and waste disposal sites.

Furthermore, there have been incidents where the state of public restrooms has deteriorated due to high usage. This could be due to either the limited number of available restrooms or the frequency of visits from tourists (Williams, 2018). Currently this is addressed by SitOrSquat, a mobile application which displays the location of public restrooms in select countries. However, this information is often inaccurate or missing entirely; leaving room for improvement. This problem space was not pursued as there were examples of improper waste disposal despite available facilities (Kuprienko, 2018). This suggests the issue is possibly caused by lack of personal responsibility and human behavior, rather than the lack of necessary tools and facilities.

Finding Events

Making friends can be difficult without allowing people to bond around common interests. It is also difficult to organize and manage events within and outside a person’s friend circle. Excluding sponsored events, challenges exist in advertising small scale events or events focused on niche interests to potential attendees.

The success of an event, in terms of the number of participants, heavily rely upon the availability of the attendees. Without effective time management around events, people will not be able to attend the event. Attendees may also dismiss attending events due to concerns of their safety.

There are currently services that largely solve this problem space such as MeetUp, Facebook events and EventFinda. MeetUp does not offer attendee policing and by nature does not take into consideration the availability of its attendees. Their service is tailored toward advertising and managing large events because the organizer only creates and then advertises the event on the MeetUp platform. The excess attendees are able to join a waiting list once the available slots have been filled.

Facebook supports functionality for creating and exploring created events. Their categories, used in searching, are limited to Art, Causes, Comedy, Crafts, Dance, and Drinks. In addition, it has been observed that the recommended events often fail to match the interests of their targeted users. Private events can be created allowing specific individuals to be invited to attend the event. This will provide a level of security by managing the attendees.

During our research we found that Facebook does not cater to niche events. It is also harder to find events outside a friend group which means it can be harder to make new friends. It is more difficult to set up recurring events and tournaments for specific interests (e.g. Dungeons and Dragons regional tournament). We saw an opportunity to provide services to

meet this potential demand. This was the chosen problem space chosen for the initial design proposal.

Research Plan and User Research

Target Users

The chosen problem space focuses on the issues when creating and searching events. The user segmentation utilized demographic profiles and produced the target users to be an “Event Organizer”, “Exchange Student”, and “Local Student”.

Event Organizer

- Is between 18 and 30 years old.
- Is willing to use their home as the event location.
- Has facilities to serve as entertainment. This could be HBO, outdoor pool etc.
- Enjoys hosting events.
- Has trouble organizing events to fit around other people’s schedules.

Exchange Student

- Is between 18 and 25 years old.
- They are attending their first year of university.
- They are not currently residing in their home country.
- Has few to no friends.
- They are interested in attending events to make friends over a common interest.
- They are unaware of events that occur regularly in their current city,
- They are unaware of the events which are popular among university students.

Local Student

- Is between 20 and 25 years old.
- They are currently studying at a University or Polytechnic in their home city.
- They have a large social circle of close friends.
- They know about the common and mainstream events which occur in their city.
- They want to find events based on interests that are not shared in their friend group.

Context of Use

The initial intent of the system allows users to effectively find and organize local events; among other functionality. These will be discussed in further depth later in the design document. The target user’s goals are not restricted to a certain setting or environment. The desire to find connectivity within a community or social circle can be fulfilled or acted upon in various settings such as home, work, public, cafes, bars and others. However, we would expect the most common environments to be leisurely. It can be expected that a person

would more likely want to organize an event among friends on the weekend while at home, compared to creating an event while at work.

If the user is collaboratively organizing events in person, they would not need a tool for communication. If the user is secluded from others during collaboration, a system would be needed to facilitate long distance communication (such as social media). This would require an internet connection to enable the functionality. It should also be expected that an internet connection is obtainable within the context of use.

Collectively, while it is possible for this system to be used in various contexts, the envisioned context of use will be the user's residence where it can be reasonably assumed they would be isolated with an internet connection. Their residence is expected to be relatively quiet, with moderate illumination, and absent of major distractions which would consume the user's attention.

However, it is also recognized that the user may use the system in public, isolated from their peers. As the target platform is a mobile phone, this will allow the user mobility to take the system into public spaces. Given the user has mobile broadband, they will continue to be able to the functionality. Public spaces are expected to be an intense illumination, potentially noisy and have distractions. For example, if the user is using the system while roaming a park we can expect some of their cognitive load will be used to avoid collisions in the environment.

Research Hypothesis

The following are statements believed to be true about the chosen problem space and the target users:

1. People are fairly open to meeting new people.
2. People often have difficulty organizing and finalizing events effectively.
3. People may find joining an University club too much of a commitment to only participate in a few events.
4. Meeting people is hard without a shared interest.

Interview Discussion Guide

The following are questions that were asked that guided the interview.

1. Do you feel like you have the opportunity to meet people with similar interests?
2. What makes you uncomfortable when meeting someone new?
3. What would make you more comfortable when meeting new people?
4. Would makes you enjoy or dislike attending a party where you do not many attendees?
5. If you are attending University, how many University clubs did you join this year? Why do you think that is?
6. Were the events within your friend group well organized? Why do you think this is?

7. Why do you like or dislike hosting events?
8. Are you willing to host an event in which you do not know all attendees, and why?
9. What are your hobbies?
10. Are your hobbies commonly shared within your friend group?
11. Do you have trouble finding events related to your hobbies, and why?

The target users will also be asked to create an event amongst their social circle, using the tool of their choice. The target user will be in their residence isolated from the people they are making the event with.

Recruiting Plan

Conveniently, most of the target users are people of similar age to the researchers; allowing friends to match the target users. ‘Event hosts’ were selected if they had recently hosted an event and match the target user description. The target users for ‘exchange students’ were associates that are currently studying abroad. ‘Local students’ were selected if the friend is a student at the University of Canterbury.

‘Event hosts’ and ‘local students’ were interviewed in person at their residence. The ‘exchange students’ were contacted by a video call, as it was impossible to organize an interview in person. Interviews were completed between 1st and 8th August.

Initial Findings and Trends

There were distinct groupings in the affinity diagram that informed us that making friends is much easier when there is a common interest or when a mutual friend is present. This was not only limited to the interviewed introverts, but also applied to extroverts with the inclination to be social with strangers. However, the dataset also contained a number of people who still enjoyed attending events when they were not affiliated with the majority of the attendees. While it was discovered that common interests and mutual friends aided in users connecting with strangers, it was not a necessity. This confirmed our hypothesis that people are willing to meet new people. The hypothesis that meeting people is hard without a shared only held true for a portion of the target users.

The most common factor for events to fail was related to scheduling a common time slot between all the attendees. The success of events were attributed to clear communication and organization done ahead of time. It was determined that the hypothesized user struggles to organizing events was confirmed to challenges in resolving conflicting schedules. This led to the design idea of incorporating a time-tabling feature with allows participants to synchronize their schedules.

It was discovered that our target users dismissed University club events for various reasons, besides the commitment. Some found the to be membership to be expensive and for others there were no clubs which interested them. The hypothesis detailing the dismissal of

attending University clubs was confirmed, however there other reasons that were not considered.

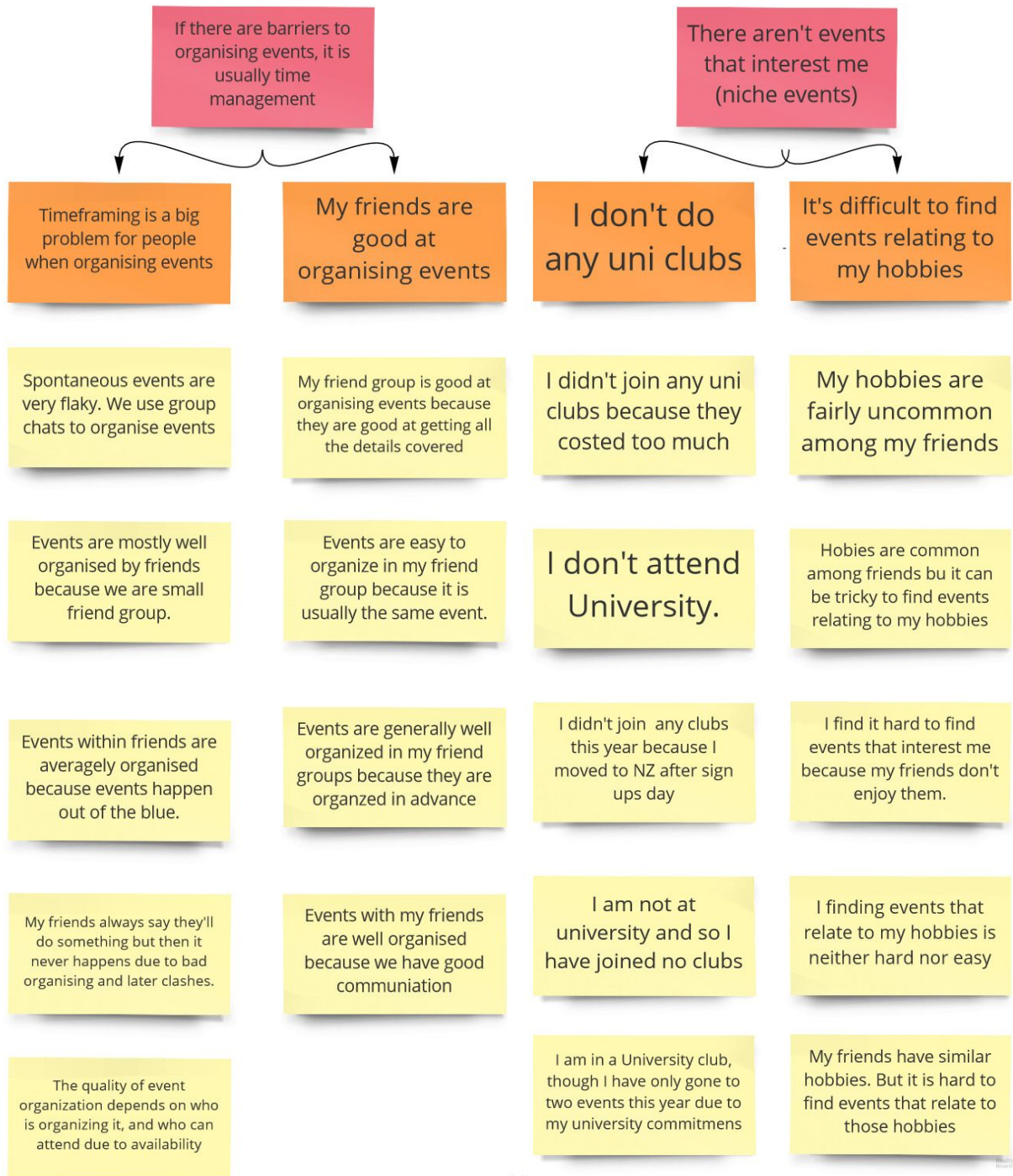
Board games, sport and video games are very mainstream hobbies people have, which contributed in the ease of finding related events. In addition, a friend group would generally share the same interests and hobbies. Regardless, the interview revealed a portion of the users found finding events hard while the rest found it relatively easy. Those who found it hard conveyed how the Facebook events which were suggested did not match their interests. This was surprising since Facebook does support functionality for searching and filtering. Due to these users not utilizing these functionality and they only viewed the promoted events, it gave the impression of Facebook lacking events which catered to their interest.

Based on these findings, it was concluded that finding events is a stronger user need compared to the goal of organizing events.

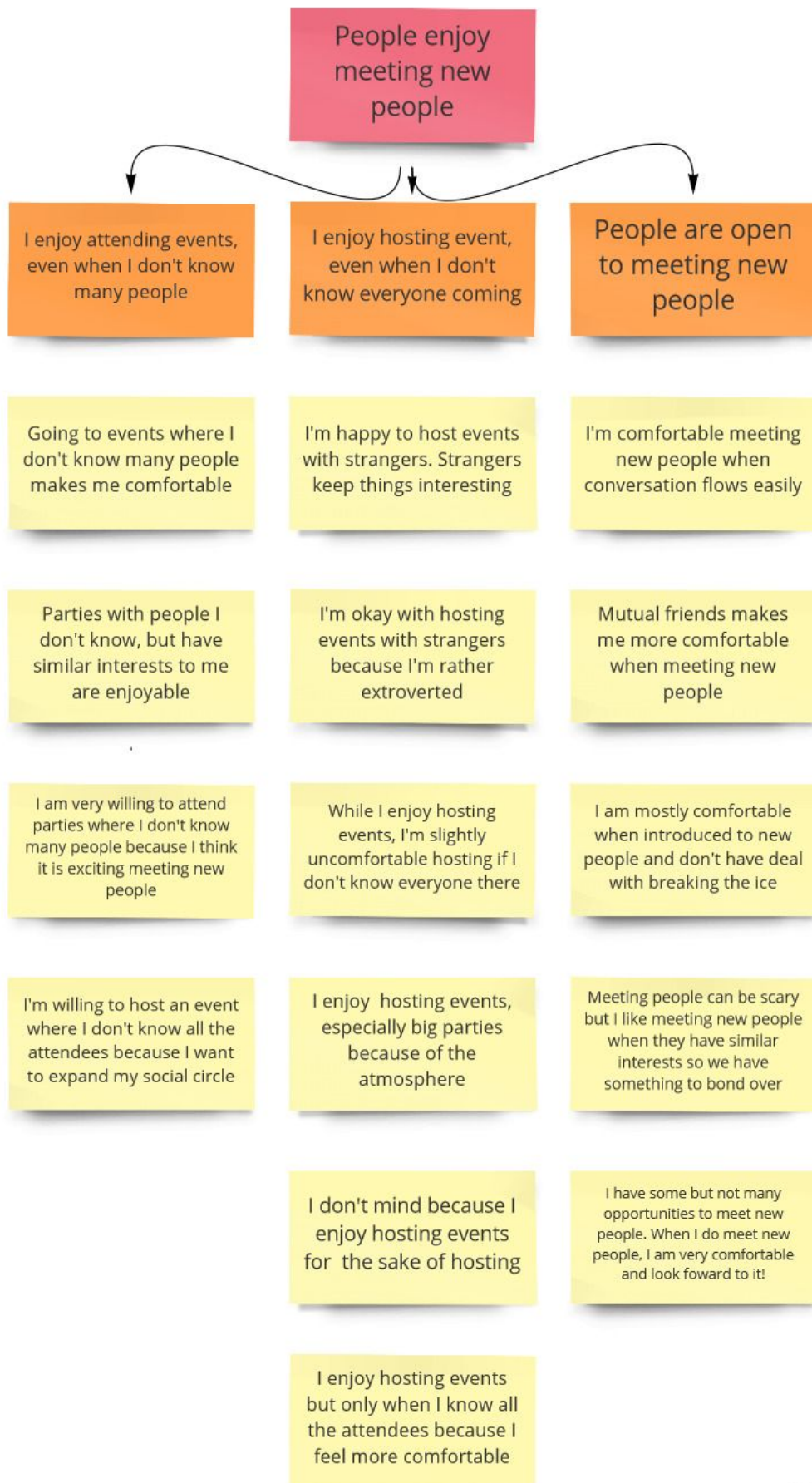
Affinity Diagram



The affinity diagram shown in the figure above has been reproduced digitally below.







Personas and Task Analysis

Personas

Sam Peterson

“Coachella was lit!”



Bio: Sam Peterson, 18 years old, first year engineering student, Christchurch

About: In high school, Sam achieved an excellence endorsement in level 3 and received scholarships for physics and calculus. He has moved from Auckland into University Hall for his first year at university. He gained direct entry into first professional year of Mechatronics at UC, though he struggles to meet people that he genuinely gets along with in his degree because no one else in the hall is in his year of study.

Personality: Extroverted and really enjoys meeting new people. Is not afraid of going to parties where he does not know anyone.

Goals:

- Meet new people
- Complete his Engineering degree, while maintaining his GPA of 8 from first semester

Likes:

- Sports
- Skydiving
- Binging TV shows
- Video Games

Dislikes:

- Hall rules
- ENCE260 tutorials

Alberto Vilar
“Can we have class outside?”



Bio: Alberto Vilar, 22, third year Commerce, Christchurch

About: Alberto grew up in South America. He finished high school enjoying the social aspects and the content he was learning but hated the way it was taught. Alberto decided that university could be different so begun studying towards a Bachelor of Commerce. After a couple of years, he decided he wanted to travel so chose to do an exchange in New Zealand; leaving behinds his friends and family. Now, he’s living in a homestay, loving the opportunity to meet new people and develop himself both socially and academically. Although very open to meeting people, Alberto finds that he can’t host events easily in his homestay. Instead he tries and finds local events for his interests, so he can try meeting people around his age.

Personality: Extremely extroverted, friendly and positive. Fairly close minded with a strong moral opinions.

Goals:

- Get his degree but have fun along the way.
- Meet people from around the world and develop life long friendships and professional relationships.
- Create a new friend group as he is still new to the country.

Likes:

- Board Games
- Tramping
- Skydiving

Dislikes:

- Non-Intuitive Software
- Being alone for extended periods of time

Jess Rata

“I could kill for a Starbucks!”



Bio: Jess Rata, 20, young professional, Christchurch.

About: Jess dropped out of high school at the end of year 12, not because she didn't like it but because she knew that her future had greater things in store. To Jess, high school was a cage that restricted creative and career potential. Upon dropping out, Jess began a Youtube channel where she vlogged her life and made craft videos. Over time, she grew a large online presence and as her career bloomed, her real life social life floundered. Jess struggles to meet people without the catalyst of social media. As she works by herself she finds she doesn't meet people naturally through work or study. Jess also loves hosting craft events, but has a lack of friends with the same interest.

Personality: Rather introverted and hates awkwardness when meeting new people, but loves socializing with people after breaking the ice. Prioritises her family and work life over her social life. Jess is not the best at organizing fan meet-up events as she struggles to find an appropriate time in her schedule.

Goals:

- Meet people with similar interests.
- To have a social life that doesn't interfere with her work life.
- Regularly host craft events with her fans.

Likes:

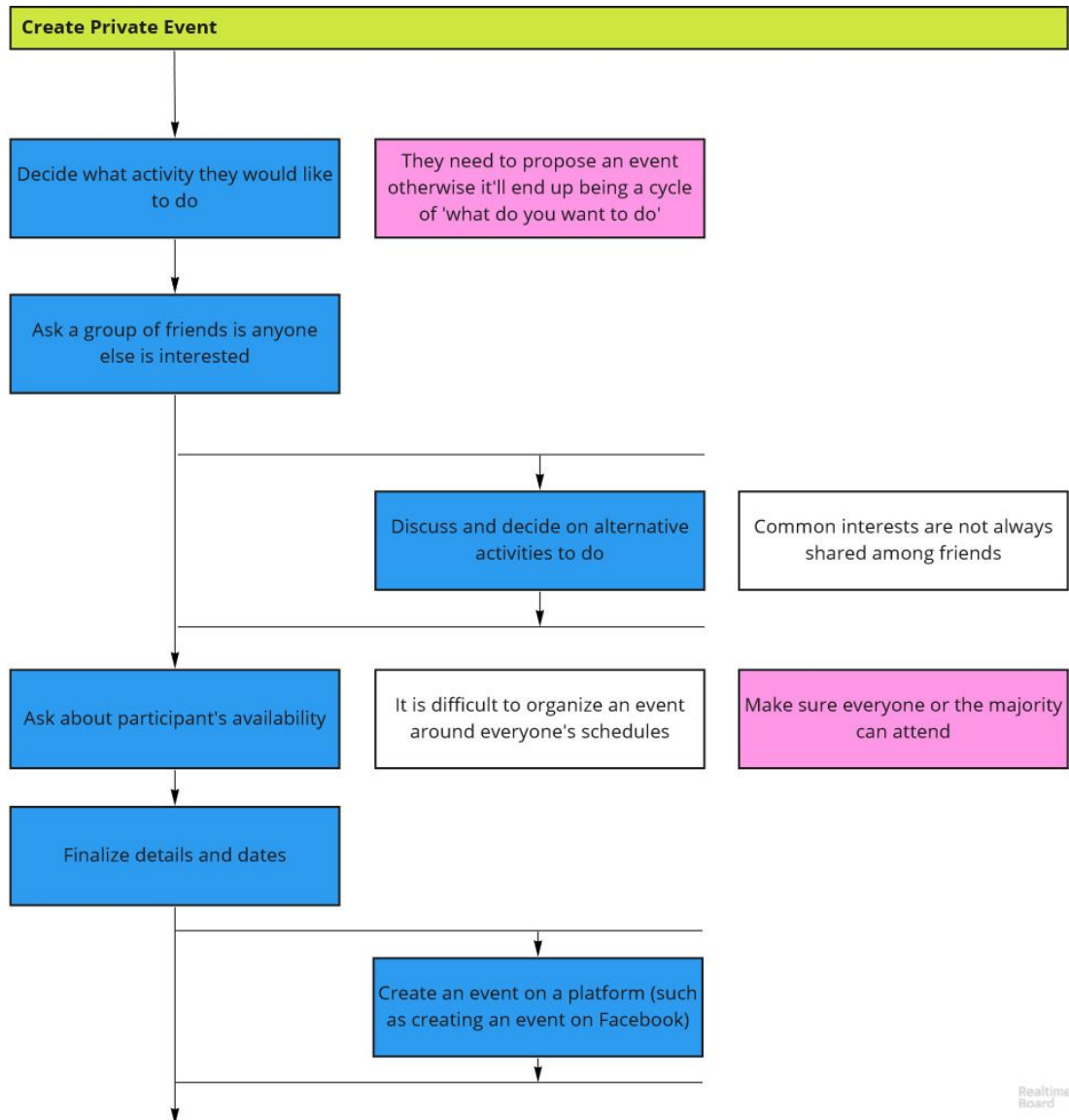
- Volunteer work
- Reading
- Arts & Crafts
- Board games

Dislikes:

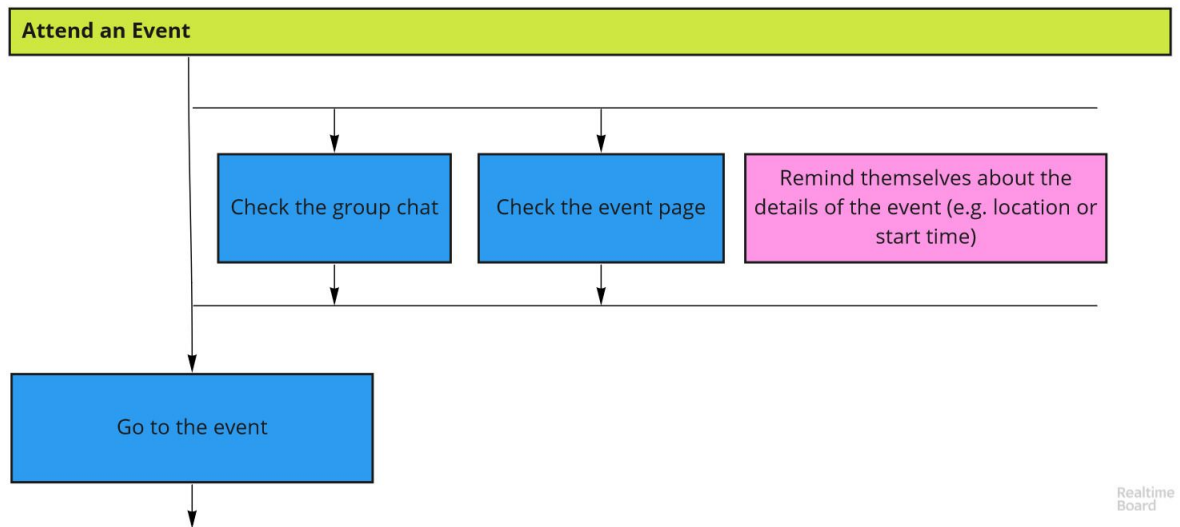
- Organising things around her work schedule

Consolidated Sequence Model

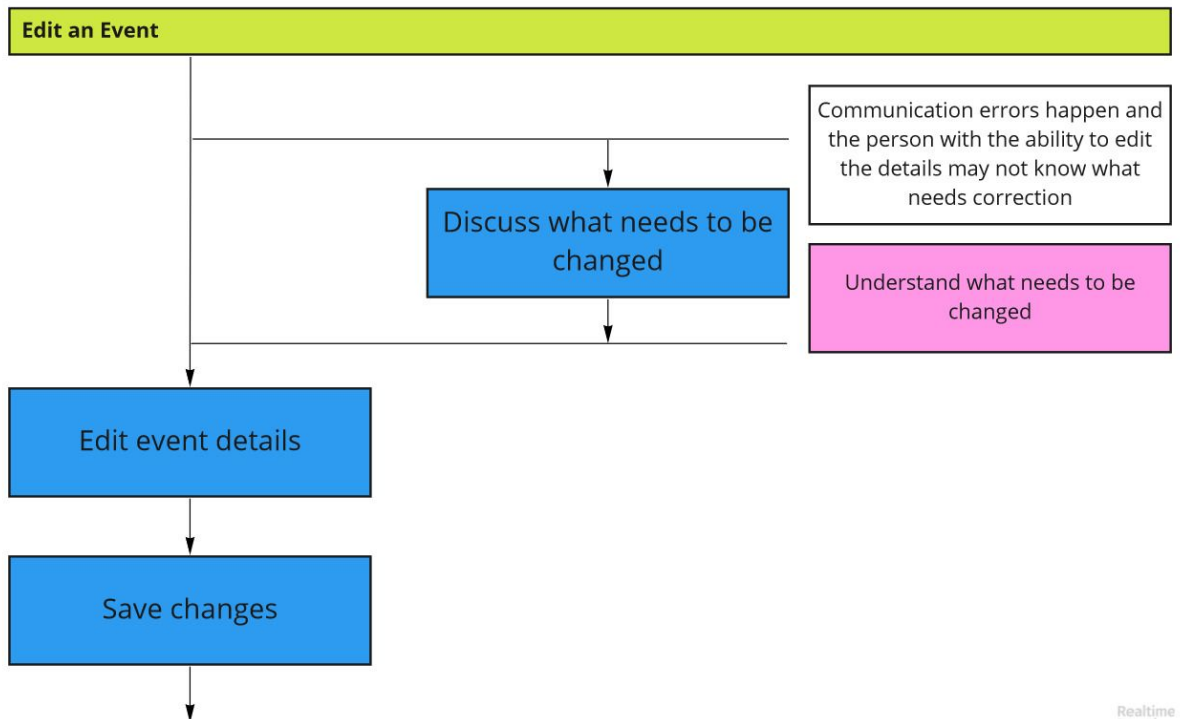
When users were asked to create a private event, they first decided what they wanted to do. This was not necessarily the final outcome of the event as when they got in contact with the attendees, the activity planned would often changed. This process also involved finalizing dates. The final step made was porting this information onto an events platform.



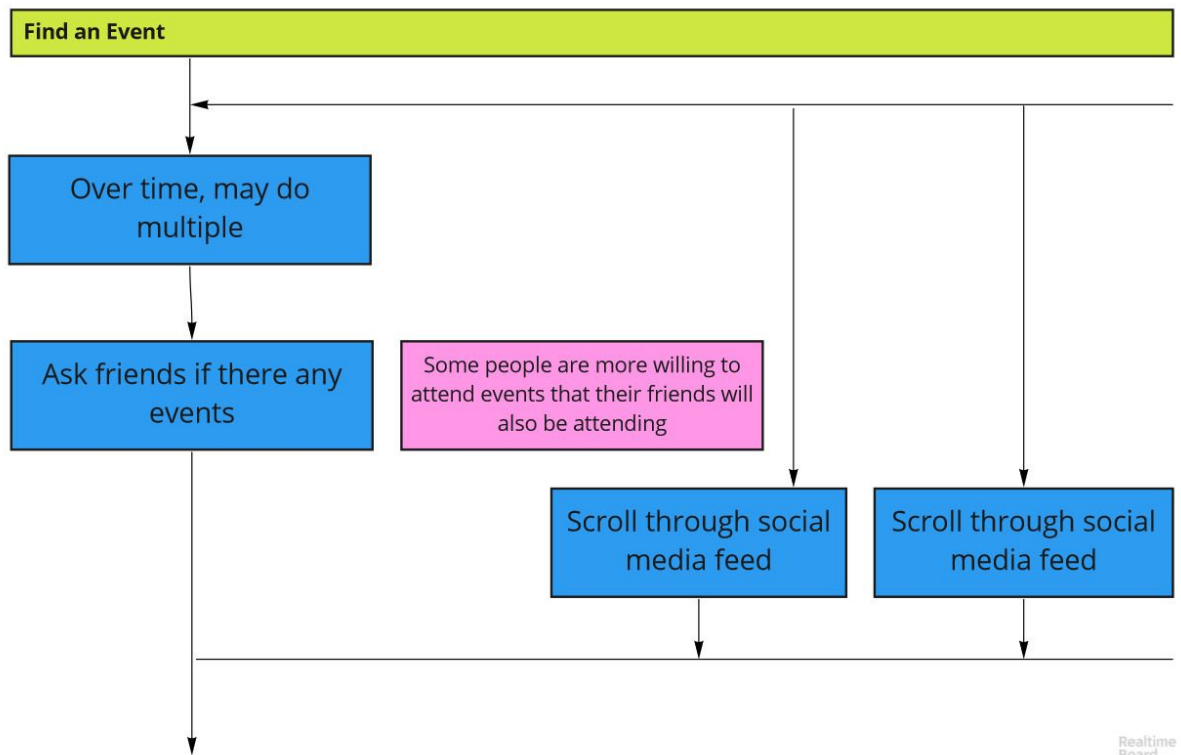
Attending an event was a very simply process for all users, firstly they would check the platform that the event was created on to make sure they can attend. They would then attend the event.



Editing event was another simply scenario for the user, they first edited the details and then save the changes. However, some users would first consult the attendees before changing the details if they were unsure of the content to be changed.



When tasked with finding an event, users would general check multiple different resources before deciding on an event.



Conceptual Model

Overall Purpose & High Level Functionality

The overall purpose of Findr is to provide platform for event hosts and attendees to:

- Create and edit a personal profile.
- Search for events based on filtering and search parameters.
- Subscribe to event updates.
- Organize, create, and edit events.
- Create and manage a friend group.
- Mark availability on a personal timetable.
- Synchronize and be able to compare each user's timetable within a group.

Major Concepts & Vocabulary

- **Event:** A planned social occasion that has been registered into the system. This is used to spread information about a gathering consistently and efficiently.
- **Public Event:** An event which does not restrict who can register interest in attending. Anyone can view the public event's information.
- **Private Event:** An event which is only accessible to specific users of the system. These users are chosen by the host or can be invited by those already attending. Only these users of the system can view the event and its' information.
- **Host:** The creator of the event is the event host. This host is associated with a singular profile within the system.
- **Host Rating:** After an event, attendees can rate and leave comments on the host. These ratings are displayed on the host's profile to convey their reputation to future attendees.
- **Invitee:** A person who registers interest in an event, but does not guarantee their attendance at the at the event. A list of these people for an event is visible to the event host, invitees and other attendees.
- **Attendee:** A person who has committed to attending an event. A list of these people for an event is visible to the event host, invitees and other attendees.
- **Profile:** An overview of an attendee's details including name, date of birth, gender, past attended events, interests, biography and average rating for the events they have hosted.
- **Event Feed:** A scrollable list of events that might interest the attendee viewing it. It can be filtered by category, time, duration, location and number of friends attending.
- **Group:** A collection of users of the system that have mutually agreed to form a connection. This allows private events to be created where all individuals of the group will be invited as well as the comparison of each member's timetable.
- **Group Timetable:** A timetable showing the each group member's personal timetable.

Objects/Operations Analysis

<u>Object</u>	<u>Attributes</u>	<u>Operations</u>
Event	Category, start datetime, end datetime, location, title, description, drinking policy, publicity level (private or public), tags, attendees, repeats, fee (optional)	Update, postpone, cancel, edit details, view, mark interest, mask as attendee, mark not interested, view attendees, view invitees
- Video Games/LAN	Games	
- Poker	Dealer, chips, buy in amount	Tutorial, view poker hands
- Board games	Games	Roll dice
- Sports	Sport, teams, score, tournament bracket	Assign teams, set bracket winner
Profile	Name, user rating, date of birth, contact email (optional), contact number (optional), date of birth	Edit details, view
- Host		Create event, invite attendees, view attendees,
- Attendee		Browse events, Request to join an event, Invite friends to join an event
- Friend	Mutual friends	Remove a friend, add a friend, invite to group, send message
Group	Friends, name, description (optional)	Invite to group, remove from group, create private event
Event feed	category, time, start and end datetime, location, friends attending.	Filter by start or end datetime, search for keywords, search for tags
Timetable	Events, time slots, date, month, year, time	Compare timetable with group, sync with third party timetables

Conceptual Scenarios

Finding an event

Provide Optional Criteria for the Search:

- Select filters
- Provide keywords for the event description or title
- Provide the name of the host

Start Search

Review search results

- Navigate through the results (each is a summary of the event)
- View a specific event to show more detailed content

Show interest

- Mark yourself as attending
- Mark yourself as interested to receive notifications
- Mark yourself as not interested in attending the event

Creating an Event

Provide event details

- Set as generic event or specialized event
- Fill in event details
- Set it as a recurring event (weekly, monthly, yearly)

Set the attendance policy

- Mark the event as invite-only by event creator.
- Mark the event as friend-of-friend invite.
- Mark the event as open-invite.

Publish the event

Invite friends (optional)

- Choose the option to invite friends
- Select the desired friends
- (Optional) search for a specific friend
- Send the invites

Decline an Invite

Select invitation notification

Mark yourself as not attending the invite

- Reason

- User can not attend
- User is not interested by event

Accept an Invite

Navigate to notifications

Select invitation notification

Mark yourself as attending the event

Create a group

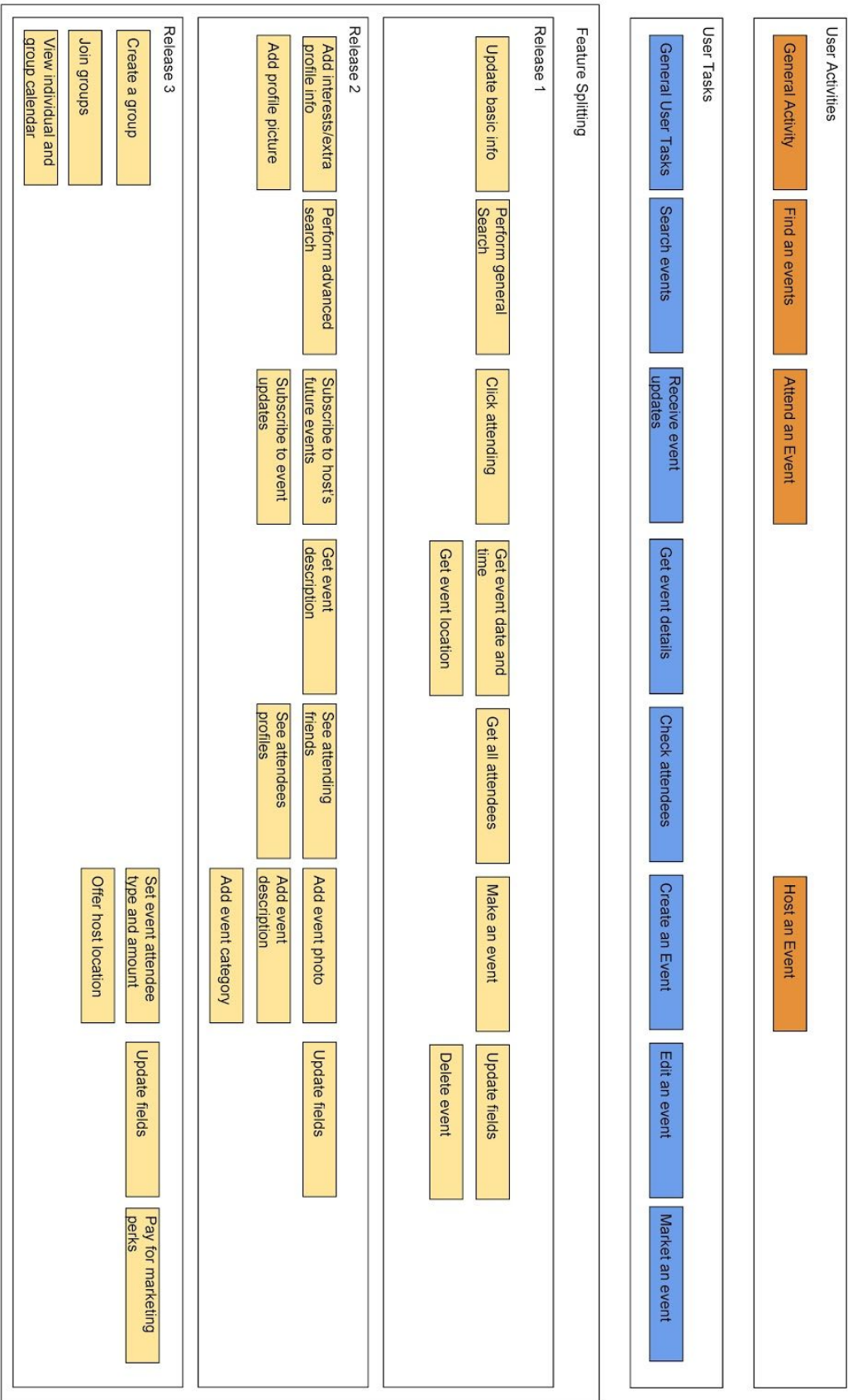
Navigate to your groups

Select option to create a group

Fill in the details

- Fill in details
- Invite friends to the group

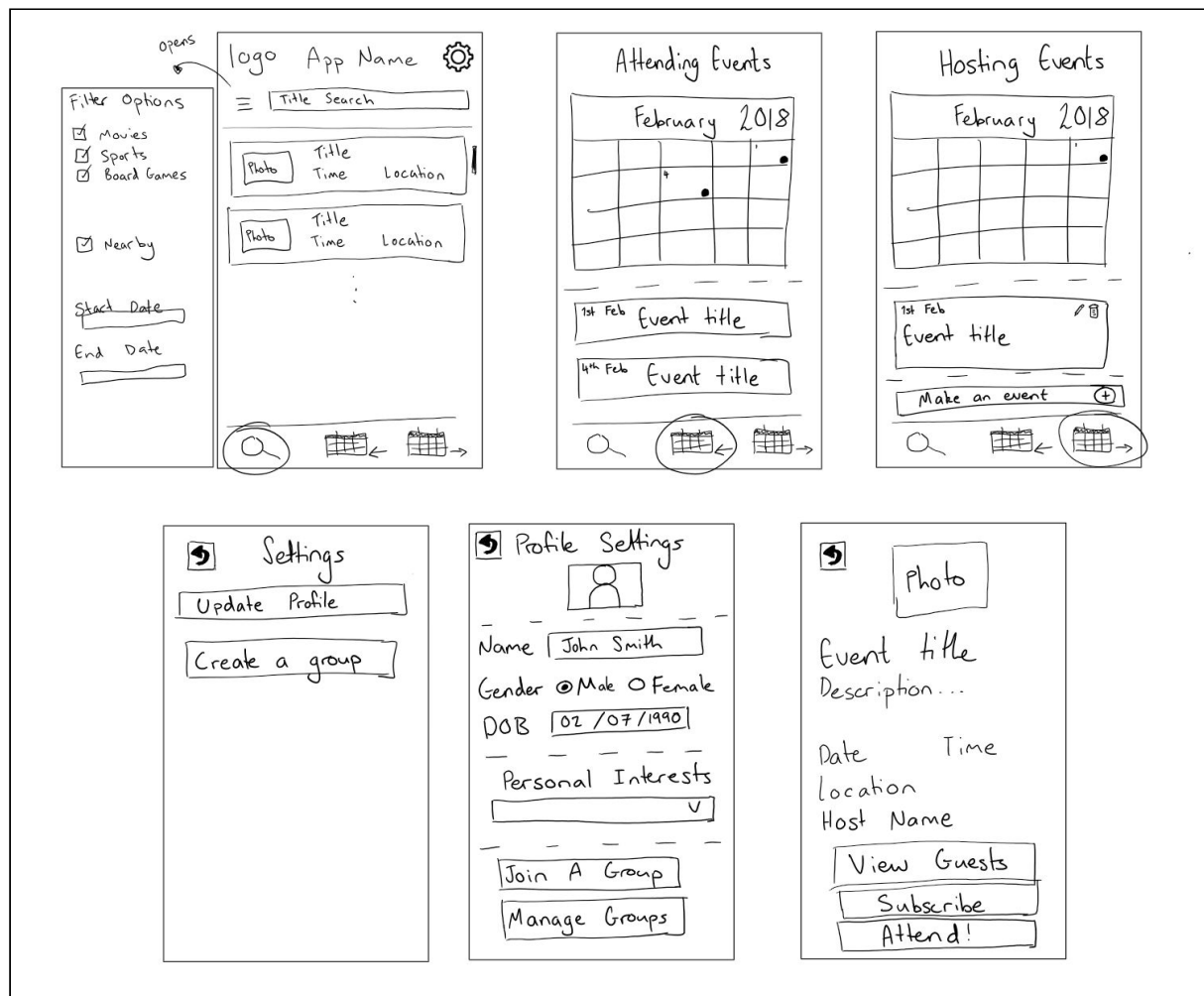
User Story Map



Low-Fi Design Alternatives

Wireframes build upon the structure plane described in the conceptual model. They display the skeletal framework of the design such as the physical layout and placement of UI elements on the page.

Design 1



Analysis

The skeleton plane is well-developed in this design while the surface plane is lacking in certain areas. The navigation design of this wireframe makes it largely clear to the user how to navigate throughout the application with navigation buttons placed at the bottom of the application. However, these buttons do not persist when viewing the profile tab. In that instance a back button is shown. The navigation design of this application also aids in the information design, showing the user where in the application to find certain information and functionality. For example, the user can clearly understand that the search tab is where to find new events to browse. The home page (image 1) displays information about each event well utilizing surface plane elements such as images and text to convey information to

the user. The filter functionality is initially hidden purposefully to declutter the home page of filter and search options. This aids user understanding of the app by simplifying the interface. However, when viewing a particular event, text proximity makes it difficult to align with a purpose. Buttons have outlines to signify their functionality, however, the text does not easily lend itself to understanding in the same way.

Design 2

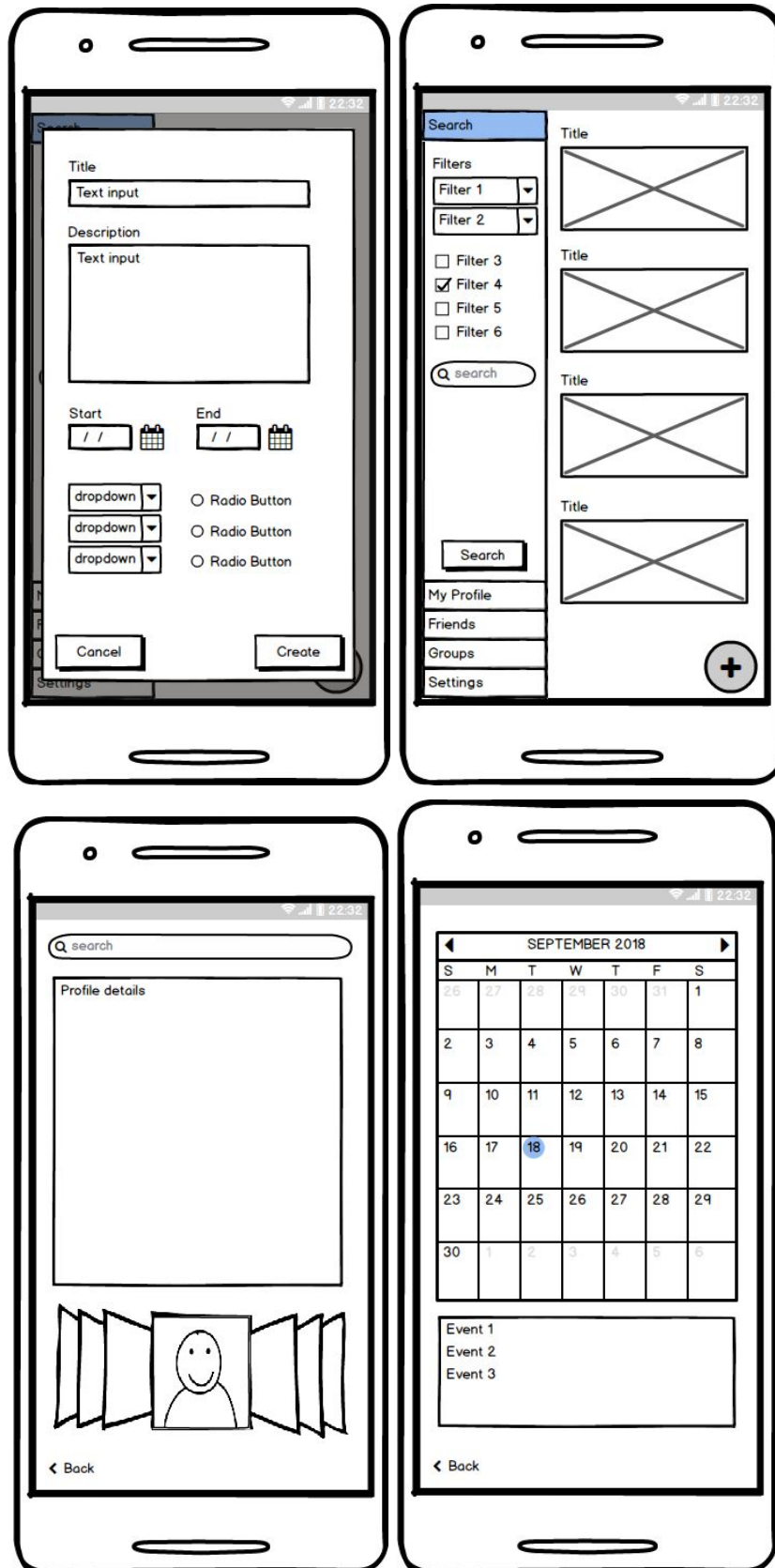


Analysis

Drawing inspiration from Apple's UX guides, Design 2 utilizes a tabbed layout along the bottom which provides clear delineation of functions within the app. In this way, the navigation is displayed visually to the user which enhances user understanding of the functions available to them. The information pertaining to events are clearly shown in a list view where each item is a tile containing pictures, text and color for the user to quickly

understand the information presented. Furthermore, the interface design is consistent and clear. High-level functions such as back, create, or add and filter are placed near the top of the interface. These UI elements clearly display the functions available to the user. The surface architecture builds upon these principles by using colors such as a green add button to provide signifiers to the user. Titles are larger and bolder, while icons and images aid in the communication of information to the user.

Design 3



Analysis

The home page contains the navigation design, hidden underneath the search filters. While it may hinder navigation throughout the app, it provides more space for the information. The search filters can be closed to show larger event titles on the right. These tiles can then display more rich information to the user and provide. Minimizing the navigational functionality could improve the user's understanding of the information provided to them. However, the surface plane is not as well developed in this wireframe. Titles are larger and bolder, while bodies are smaller.

Conclusion

This project provided an opportunity to gain practical experience conceptualizing a product through a user-centered design model. We explored potential problem spaces and identified one that could be solved. After defining proto-personas and planning user research, potential users were interviewed. Summarizing these findings lead to creating personas, and sequence models. Finally we created a conceptual model, user story map and low-fi design alternatives. This resulted in a complete understanding of the problem space, potential user's needs and three fully considered design alternatives.

During this process, the value of empathy was very clear. After the problem space was found, the first step was to gain empathy for potential users by observing users in their context of use. The conclusions drawn from user research impacted the rest of the project. Having empathy during this lead to a complete understanding of who each user is. Meeting them in person and working through their dreams and needs lead us to design a product with considerably greater problem-solving potential.

It did not take long to identify that our product would be rooted in social interaction. We were surprised with how varied social interactions were. Instead we saw a range of methodologies around how social interaction could take place. It was also surprising to see that not all of our hypotheses were supported by the user research. Events tend to be well organized within friend groups but finding events external to friends are hard to find. This was surprising and further backed up the importance of user research to better understand the user and the problem space.

As a team, we are proud of the way that our findings and decisions in one plane propagated through the upper planes. Designing Findr was not a calculated process. It instead developed organically from plane to plane as user needs were uncovered and better understood. As software developers, we have learned the importance of user-centered design.

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