C. Ideate:
Personas, Tasks, and Requirements

Introduction

While analyzing our field work, several glaring issues began to emerge through our survey and interview responses. First, it was clear that participants felt there was an unmet need for bike theft prevention on campus. Second, female students appeared more concerned with safety at night, in housing, and regarding the potential for assault on campus. Third, students new to campus felt more unsafe even though they had never experienced any unsafe incidents. Seeing as awareness of safety resources is the common thread between these issues, this report will converge our analysis on the problem of interconnected safety awareness between security staff and students.

Personas

Persona #1: Commuter Student “Frank”

Frank is a third year domestic student at UBC currently pursuing his undergraduate degree in Human Geography. Constantly trying to reduce his carbon footprint, Frank prefers to commute to UBC on his bike in any kind of weather, rain or shine. Each day, Frank’s normal commute begins with him plotting a route from his apartment on Main Street to his lecture on campus. Once he arrives on campus, the search for a safe place to lock his bike begins (visibility, centrality, other bikes). He’s had a bike stolen on campus once before and, being a starving student, he simply can’t afford for this to happen again. Throughout the day, Frank frequently checks on his bike to make sure it’s still there. Frank wonders if other storage options would grant him peace of mind.

Supporting data for Persona #1: Table A1, Figure A1, and Responses B1

Persona #2: International Student “Ania”

After finishing her undergraduate degree in Poland, Ania decided to move to Canada to pursue a graduate degree in Data Science at UBC. Being new to North American culture, Ania experiences culture shock. She is surprised to see how large and sparsely populated the campus is, especially at night. From her apartment at Marine Drive, it is a 30 minute walk or more to get groceries at the Save-On-Foods. Ania and her friends coordinate days of the week to get groceries so that they can walk together after dark. Although Ania has never experienced anything unusual take place on campus, her friends have told her stories of being followed while walking. Rarely seeing security patrols and living so close to Marine Drive, Ania wonders if there are safer ways to get around.

Supporting data for Persona #2: Figure A2, Figure A3, Figure A4, and Responses B2

Persona #3: Campus Security Officer “John”

John is a five-year veteran Campus Security officer at UBC, driven by a sincere desire to ensure the well-being of every student. Tech-savvy and proactive, he often recommends safety improvements

and is frustrated that students aren't fully aware of existing safety resources. In addition to regular patrols and emergency response, he takes the initiative to check security features like the Emergency Blue Phones and cameras. John believes in a shared responsibility for safety and aspires to foster a culture where students are as informed and proactive about safety as the Campus Security team. His ultimate goal is to see every student utilize available safety resources, actively participate in safety workshops, and contribute to a safer campus environment.

Supporting data for Persona #3: Figure A5, Figure A6, Figure A7, and Response B3

Task Examples

Task #1: Safe Bike Storage on Campus

Once Frank arrives on campus it is imperative that he finds a safe place to lock his bike. He does a search and determines that there are three options near his class: lockers, cages, and racks. Worried about bike theft, he opts to store his bike in a cage, for which he already has the appropriate permit. Frank then does a search to determine the best bike path to take to get to his chosen bike cage. When he arrives, he scans his UBCard to unlock the cage and stores his bike.

Task Steps

1. Searching for bike storage options
2. Deciding to store bike in bike cage
3. Selecting covenient bike cage location
4. Finding route containing bike paths
5. Biking on bike path to get to bike cage
6. Storing bike in the bike cage
7. Checking the bike from time to time
8. Retrieving bike from the bike cage

Task Analysis

All of the searching required for this task, specifically in steps 1 and 4, isn't supported through a single interface. Finding an appropriate bike storage option either involves seeing what's visibly around or searching Google or UBC's website to find bike storage options. Likewise, finding bike paths on campus requires reading signage while biking or, again, searching Google or UBC's website. An issue regarding steps 2 and 6 is that it's unclear if an individual can simply walk up and use a bike cage, or if they need to register in advance. Moreover, it's possible that the bike cage selected in step 3 is full and the individual, upon realizing this in step 6, needs to find an alternate location. While on the bike path in step 5, the individual could get lost and need directions. Lastly, in step 7, it may not be feasible to check on the bike frequently if it's too far away. Examining Appendix C, we see that this task relies on the Information System and Bike Cage resources.

Task #2: Getting Across Campus Safely

Ania lives on campus and has to walk quite far to get groceries two to three times per week. She does a search to determine the various on-campus transportation options that are available to her. Discovering that there are shuttle and Safewalk services that can take her to the grocery store, she decides to take the shuttle. Next, Ania examines the shuttle routes to determine where to get picked up. Before leaving for the shuttle stop, she researches a walking path along a well-lit route.

Task Steps

1. Searching for transportation services
2. Deciding to use on-campus shuttle
3. Determining shuttle route and stops
4. Finding a well-lit, visible walking route
5. Informing friends about the walk
6. Walking to stop and catching shuttle
7. Returning by shuttle to the stop
8. Walking home and informing friends

Task Analysis

The issue with step 1 is that it's unclear what the preferred searching method is for transport services on campus. The Safe App presents Safewalk, the UBC website presents shuttle options, and Google Maps presents bus routes. If the individual isn't careful, they could choose a shuttle in step 2 that isn't running and could end up waiting for a shuttle in step 6 that never arrives. Due to construction on campus, shuttles likely change routes frequently. Therefore, step 3 runs the risk of finding a route that no longer exists. Step 4 is merely an educated guess, as an individual would likely use a map of UBC or Google Maps to find main roadways. If no friends are awake or available in steps 5 and 8, it's possible that the entire journey goes unmonitored. Lastly, in steps 6 and 8, the individual could get lost on their way to or from the stop and need directions. Examining Appendix C, we see that this task relies on the Information System, Shuttle, and Friend resources.

Task #3: Seeking Help on Campus

Ania, a new student unfamiliar with UBC's safety resources, finds herself intoxicated at a party. Her and her friend would like to go home, however her friend is too drunk and isn't capable of walking. She decides to do a search to see if someone can help them. Eventually she successfully contacts John, a Campus Security officer who is on-call. After explaining the situation and where they're located, John makes his departure. John assesses the situation and decides to drive them home.

Task Steps

1. Deciding to seek help
2. Searching for campus services

3. Connecting with security officer
4. Providing current location
5. Officer provides time of arrival
6. Waiting for the officer to arrive
7. Officer arrives and provides help
8. Officer escorts them home

Task Analysis

Step 1 is largely dependent on Ania's own awareness and judgement. The sooner she realizes she needs help, the quicker she can take action. The issue with step 2 is that there isn't a centralized resource for campus emergency services: UBC's website, the Safe App, and Google. Again, connecting with Campus Security in step 3 could be done in a multitude of ways, which is arguably a good thing in this case. It's possible that there is no quick or effective way for Ania to share her current location in step 4. In step 5, all available security officers may be busy, so they may not receive an informative arrival time. If Ania's friend is in immediate danger, then it is crucial that step 6 happens quickly. Lastly, step 7 is dependent on the state of Ania's friend, which may dictate what happens next. Examining Appendix C, we see that this task relies on the Information System resource. Furthermore, this task requires the exchange of information between Ania and John.

Requirements:

Requirement #1: Real-Time Safety Resource Accessibility

The system must provide real-time information on the availability and location of campus safety resources, such as campus security patrols, safe walk programs, shuttle services, and emergency call stations. This information should be readily accessible through numerous channels such as mobile applications, websites, and physical maps strategically located around campus.

Rationale

This requirement directly addresses the core issue of safety awareness and immediate help identified in the tasks and personas. For example, Emily, a new student unfamiliar with UBC's safety measures, would greatly benefit from a system that instantly informs her about the nearest safety resources when she feels unsafe. Similarly, Ania, an international student who finds the campus large and isolated can utilize real-time data to plan safer routes. Additionally, John, a campus staff member eager to help every student, can more efficiently provide these resources.

Measurability

The effectiveness of this requirement can be measured by tracking the utilization rates of various safety resources before and after system implementation. User surveys and interviews can also be conducted to assess whether the system has indeed improved access to safety resources.

Requirement #2: "Areas of Concern" Mapping and Alert System

The system must include a feature that allows for the dynamic mapping of "areas of concern" on the campus. Both security staff and students should be able to mark these areas in real-time on an interactive campus map. For instance, if Frank's bike gets stolen, he could mark that area as a high-risk spot for theft. Campus Security officer John could corroborate this data with security footage or other reports and take appropriate measures. Alerts can be sent out to individuals like Ania who may be planning to travel near that area, allowing her to choose a safer route.

Rationale

The identification and communication of areas of concern are vital for an interconnected safety ecosystem. This directly addresses John's mission to involve students in contributing to a safer campus. Frank would benefit by knowing which areas to avoid when parking his bike, directly aligning with his bike storage needs. Ania, who worries about her safety at night, would be better informed and prepared for her commute to the grocery store. The dynamic mapping system provides an invaluable channel for all personas to share responsibility for their collective safety.

Measurability

Success can be evaluated by the rate of reporting and resolving marked areas, either through increased patrols, installation of new security devices, or community education. Feedback can be gathered periodically to measure the perceived effectiveness of the "areas of concern" feature.

Requirement #3: Always-Available Helpline & Emergency Response

The system must include a dedicated feature for immediate emergency assistance that is operational 24/7 and promises a response time of less than 5 minutes. In the event all Campus Security officers are busy, a chat helpline will provide immediate assistance until one is available.

Rationale

For all personas, the need for prompt help is crucial. Campus Security officer John would also greatly appreciate a tool that helps him and his team respond to emergencies faster. This feature addresses this universal need for immediate help and it fits with all our persona’s concerns, enhancing their sense of safety and security. The helpline isn’t just for emergencies. If an individual gets locked out of their building, for example, they could contact the helpline for assistance.

Measurability

Success can be measured by monitoring the actual response times and comparing them to the 5-minute benchmark. User feedback about the effectiveness and timeliness of the helpline and emergency response can be analyzed. This could be captured through surveys after the call.

Appendix

Appendix A. Survey Results

Q	How safe do you feel…	Min	Max	Mean	Std Dev	Count	Mode
Q11	On campus in general?	2	5	4.52	0.74	48	Extremely safe
Q12	On campus at night?	2	5	4.02	1.10	47	Extremely safe
Q13	In buildings and facilities?	2	5	4.66	0.69	47	Extremely safe
Q14	In student housing?	2	5	4.48	0.74	33	Extremely safe
Q15	Using parking garages and lots?	2	5	3.89	0.94	38	Moderately safe
Q16	Using UBC services like Safewalk?	2	5	4.04	0.94	26	N/A
Q17	Attending UBC or AMS events?	2	5	4.30	0.81	44	Extremely safe
Q18	Locking and leaving your bike?	1	5	2.8	1.30	30	N/A

Table A1: Response statistics on Campus Safety

Figure A1: Perceptions of bike safety by gender

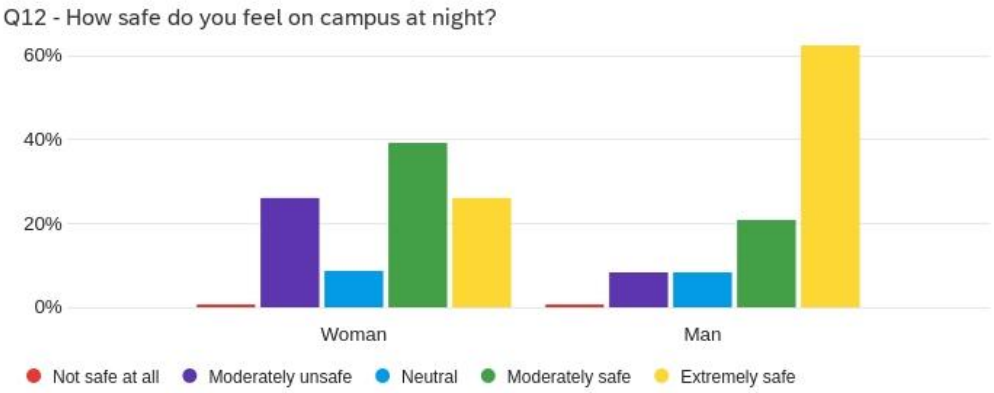


Figure A2: Perceptions of campus safety at night by gender

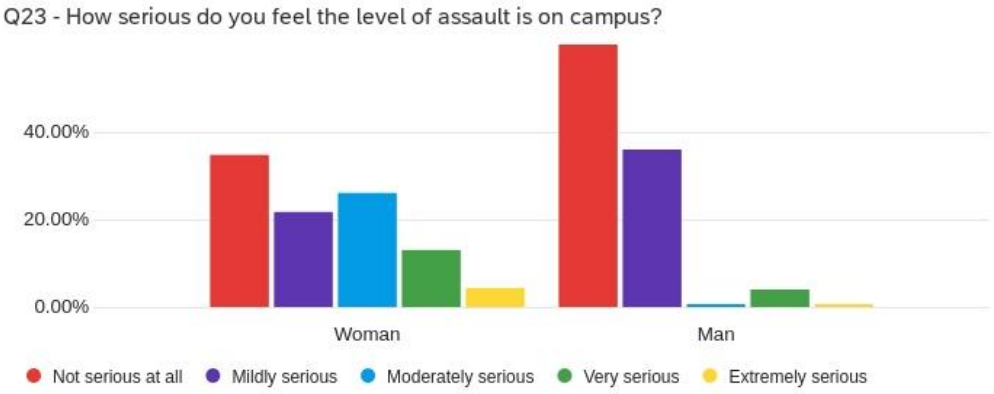


Figure A3: Perceptions of campus assault by gender

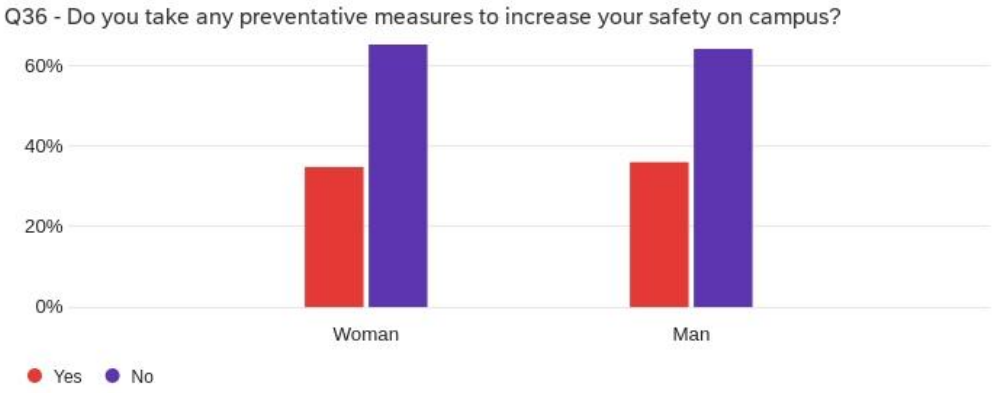


Figure A4: Preventative measures to increase safety by gender

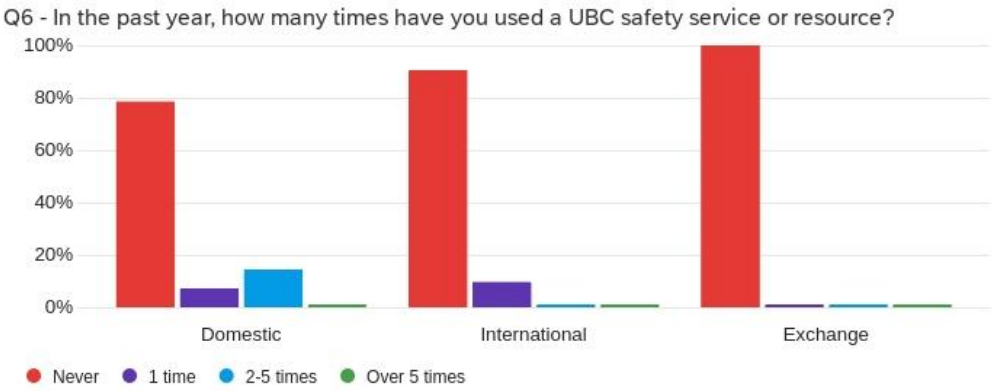


Figure A5: Safety service or resource usage by student type

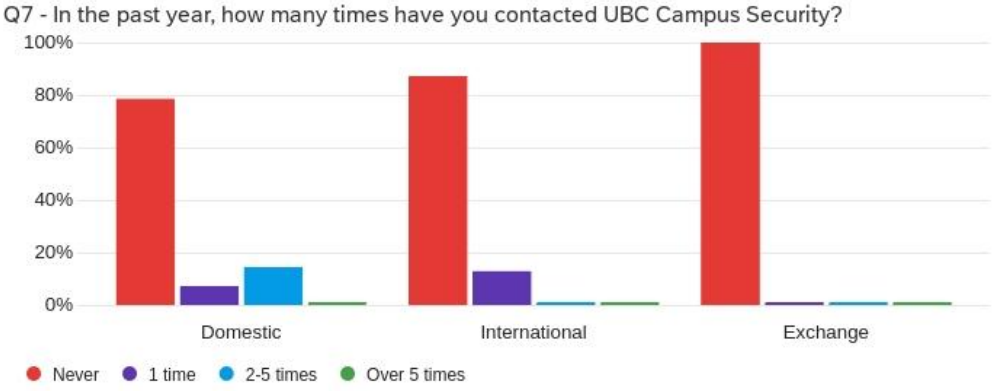


Figure A6: Campus Security usage by student type

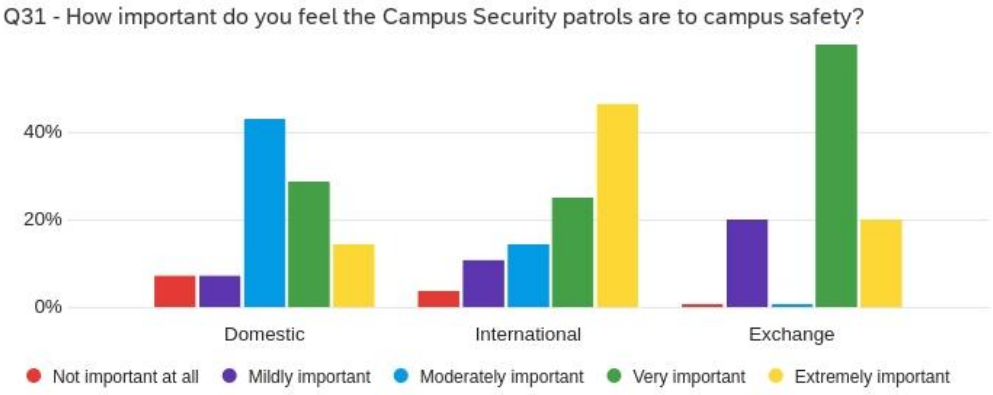


Figure A7: Importance of Campus Security patrols by student type

Appendix B. Questionnaire Results

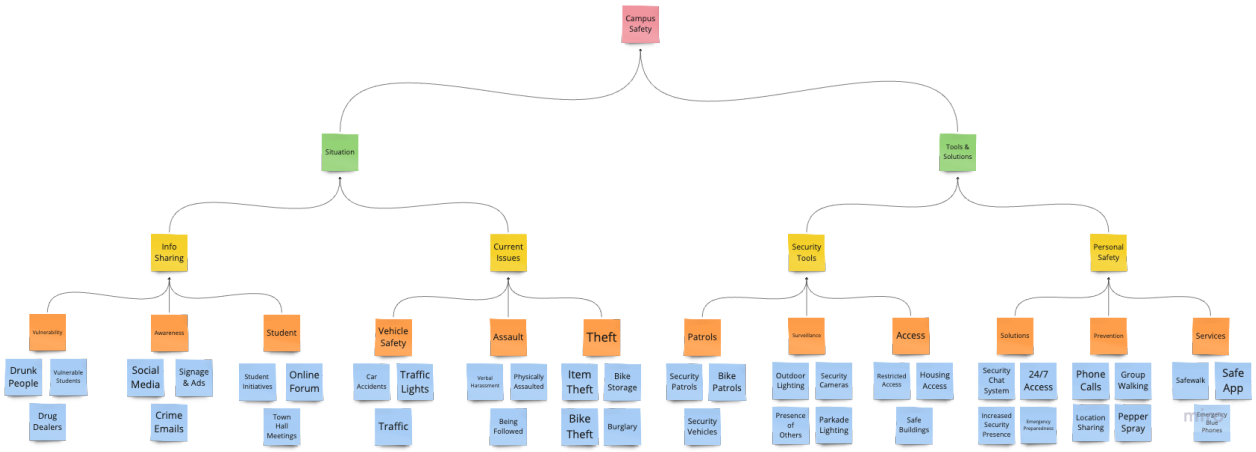


Figure B1: Encodings of interview responses

Responses B1: Interview Participant #9

“There could be more bike rooms where you pay. They probably have them? Like what they have by Skytrain. There could be more cameras at the libraries. Maybe outside? But some people don’t like that.”

“Maybe like texting each other when you get places. I check on my bike when I get a break in class. Just to make sure it’s still there.”

“Students could have face-to-face meetings with Campus Security. Even Zoom meetings. Volunteers walk around campus and look at the bike racks. Like a bike team that went around campus.”

Responses B2: Interview Participant #5

"So much happened during orientation; Was there something about safety?"

"What is this safety App? I only know about SafeWalk."

“I usually walk with friends at night. Speaking to someone on the phone when alone in a parking garage.”

Responses B3: Interview Responses

Interview Participant #1

“I know about the blue poles but how do they help me when somebody is trying to kidnap me?”

“Are they even interested in solving the crimes?”

Interview Participant #6

“I don’t know how to contact them” (campus security team)

“How do they help people then? Do they just talk to them?”

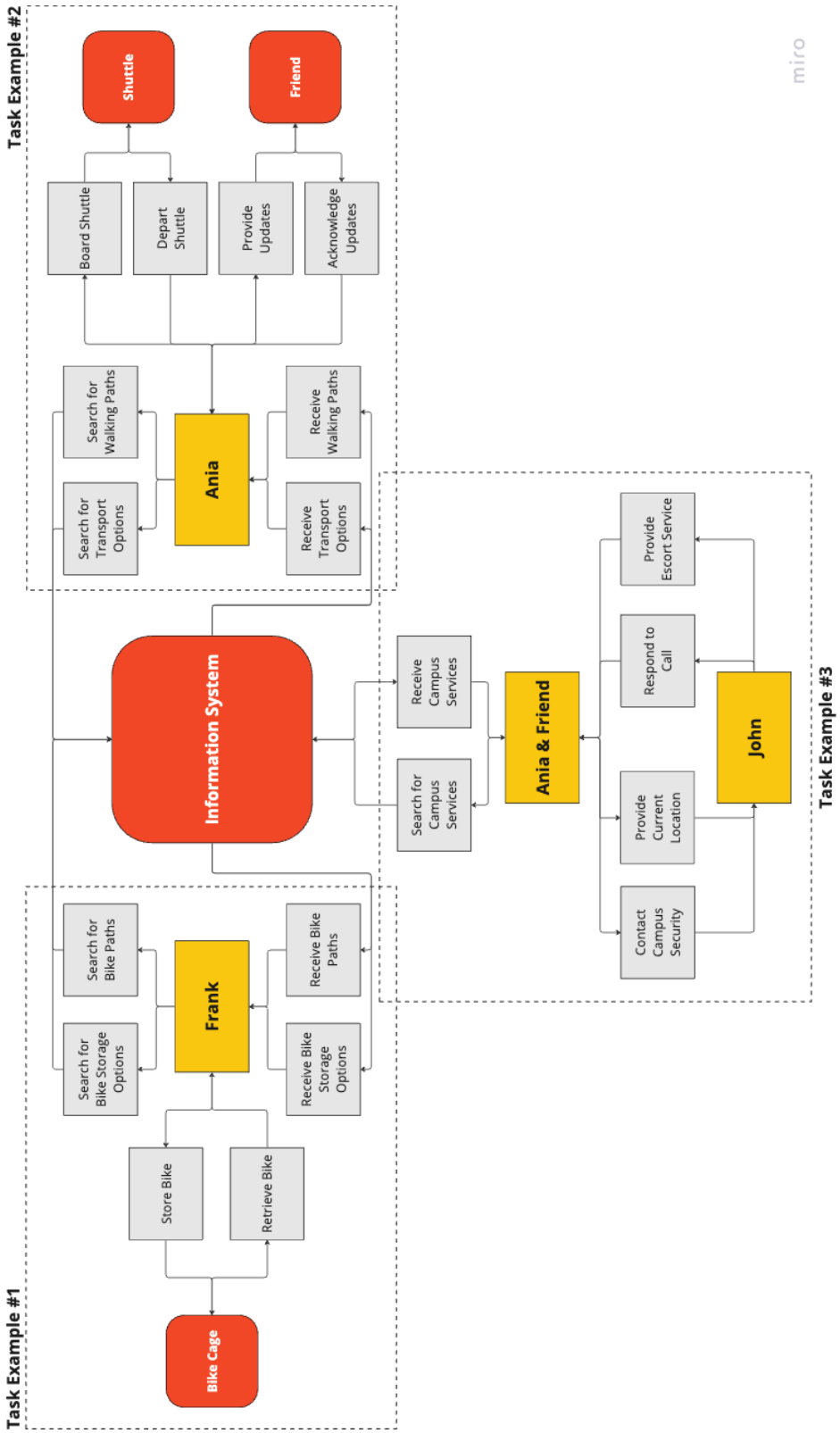
Interview Participant #7

“I think a direct line of communication is important but I don’t know what it is for UBC. Should I walk to a professor? Who do I contact?”

“I have seen about the SafeWalk but where do I get it?”

“I don’t know about this SafeApp, no?”

Appendix C. Task Example Diagram



Appendix D. Team Contribution Statement

The personas were discussed in our lab with the whole team. Luke and Aleks focused a lot on the tasks and the task analysis. Timo focused on the requirements. We all contributed to the task flow diagram. Overall we worked very well together on this deliverable. Everyone worked on everything, but the basis of each task was provided by an individual as previously described.