Notifier - Observation, Data Gathering

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2.1.1 Method: Make observations

June 18- June 22

On June 18 we had a meeting to discuss the interview. We discussed which questions to ask and made some edits to some of the questions to provide good insight and knowledge about their routine and thoughts about going back to school in person. We decided to interview 2 people each for a total of 6 and tried to interview one first-generation student and one international student.

Our gathered data and its analysis: Link to our Miro board

Link to interview results

Brainstorming and data finding

To gather data, we conducted research involving 6 participants, including family members, roommates, and international students who are undergraduate students from a university. The focus of the data gathering was the experience and challenges faced by students transitioning from remote learning to in-person. To gather data, we developed a set of 12-15 questions covering various sub-topics related to our focus, such as general aspects, commuting, health and safety, time management, resources and technology, and more.

Questions:

General

- Can you describe your typical daily routine as a student before the pandemic, and how has it changed since the transition to remote learning?
- How do you feel about returning to in-person study? What were your expectations and concerns?
- What suggestions do you have for improving the overall transition process from remote learning to in-person?

Commuting

- Did you face any specific challenges or difficulties when commuting to university? How did you overcome these challenges and how can it be improved?
- How has commuting to school changed after COVID-19? If so, how has it affected your ability to get to school?

Health and Safety

- What measures relating to health and safety do you believe are important for the university to implement as students experience to covid?

Time management

- How do you manage your time when attending in-person classes compared to remote learning? Do you face any challenges in the new environment?

Social interactions and communication

- Did you miss face-to-face interactions when you were in remote learning? What was missing in pandemic interactions compared to this and vice versa?

Resources and technology

- What adjustments did you need to transition from remote to in-person study? What challenges did you encounter?

- What do you think about the university's resource availability and accessibility? Do you think there's a need for improvement?

Financial

- What financial difficulties have you experienced due to COVID-19? How has this affected your school life?

Opportunities

- What opportunities do you think you have missed or have changed due to COVID-19?

International students:

- What problems have you experienced being away from your friends and family during COVID-19?

- How has Covid impacted your financial situation being an international student?

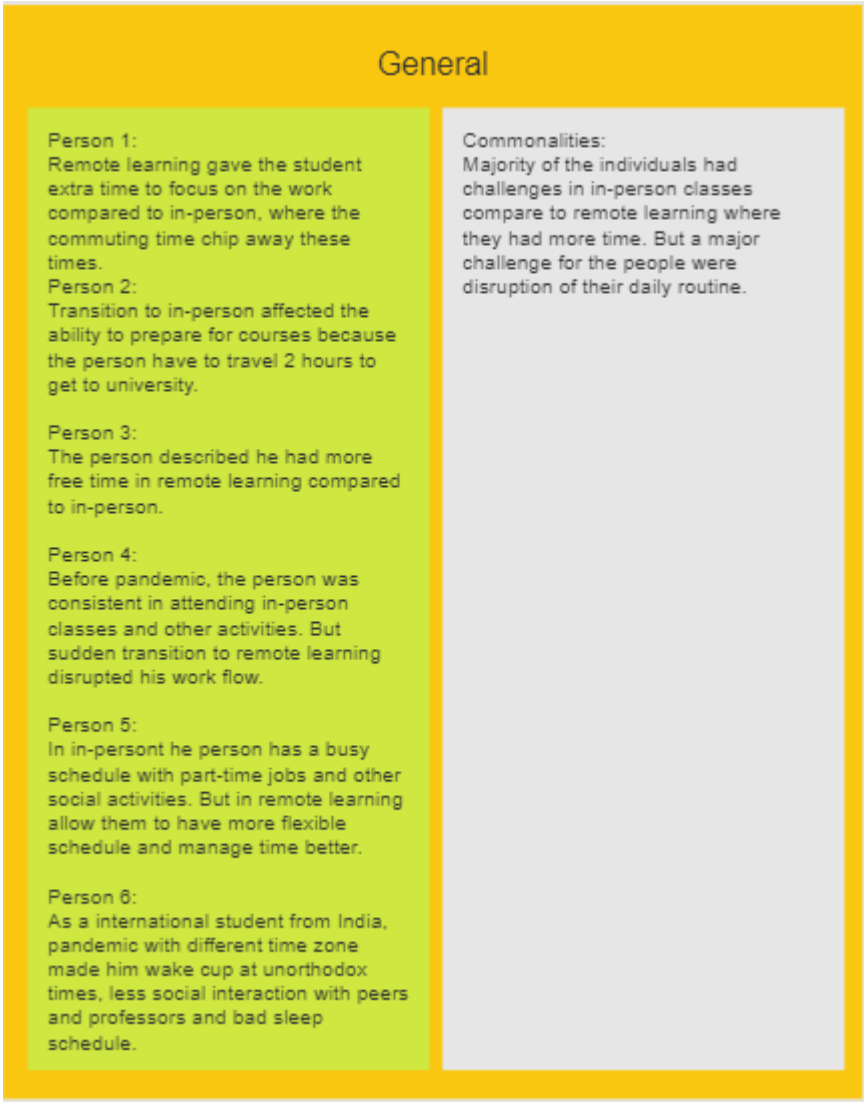
- How is your experience during COVID-19 as an international student different from a typical student?

Initially, we considered three methods for data collection. The first method was conducting interviews where we asked the participants directly. The second method was distributing a questionnaire consisting of the above questions for participants to fill in and submit. The third method was observing the participant's behavior and actions over some time. However, after careful observations of the participants, we concluded that the third method was unnecessary and decided to omit it. Because the participants were on a reading week and had limited activities during that time. Furthermore, they already had a year of adjusting to the in-person learning environment.

Therefore, we decided to interview one participant, engaging in direct conversations. For other participants, we sent a questionnaire to allow them to complete the written responses at their convenience. This method allowed us to gather in-depth information.

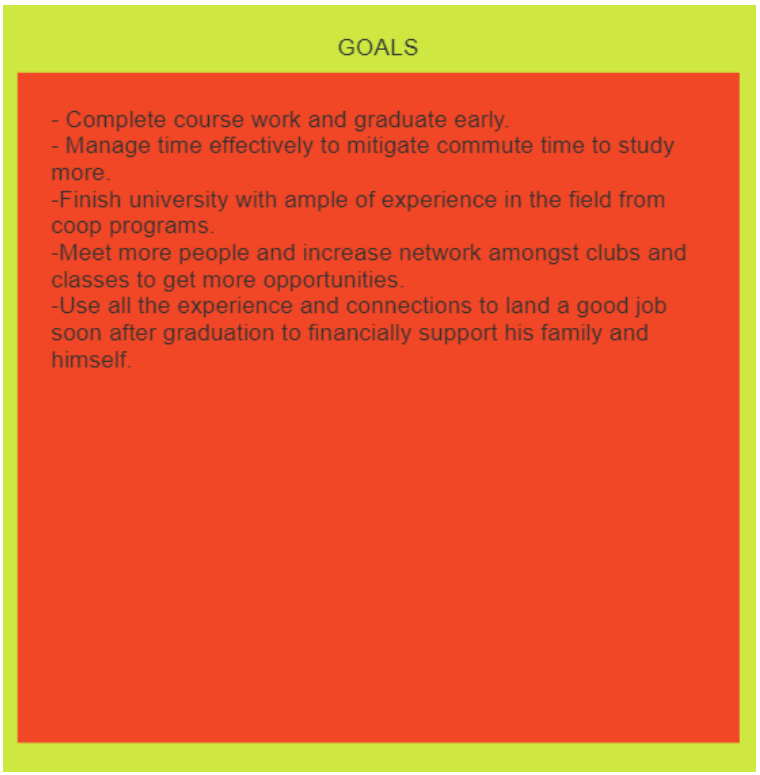
Identifying user needs and goals

We utilized a Miro board to gather data and identify commonalities among the responses. First, we grouped the participants' responses into the specific sub-sections that were previously listed. This organization allowed us to analyze and identify the commonalities between the responses. Furthermore, Figure 5 shows the commonalities found in the general section of the questions above and the rest can be viewed in the miro board linked above. [Miro Board Link]



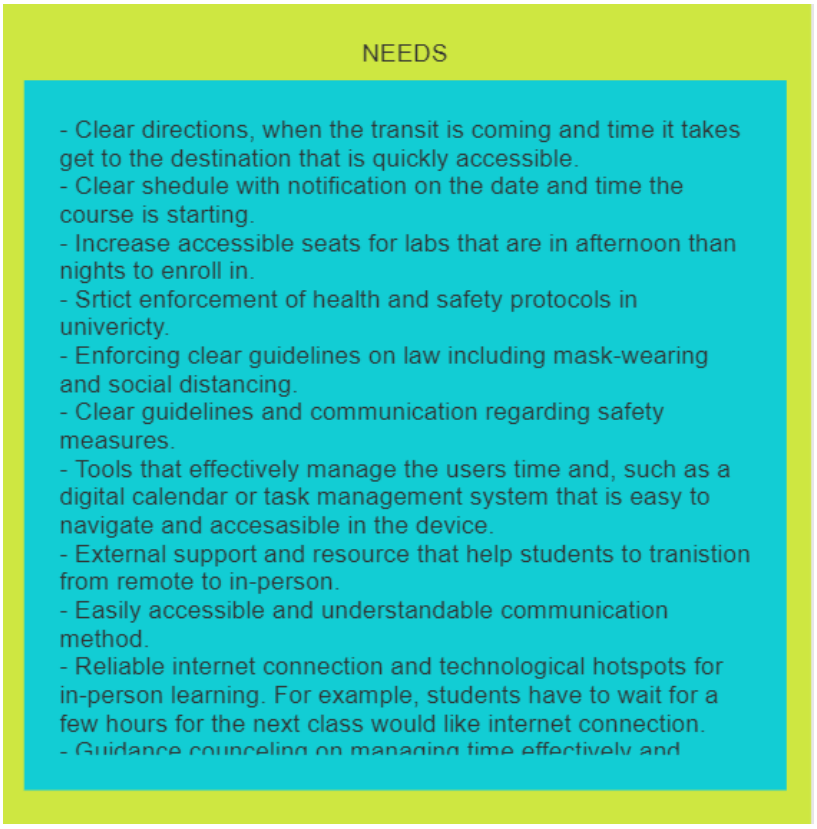
[Figure 1: This figure shows our Commonalities Identification and Analysing Board subsection general commonalities

After identifying the commonalities, in the next step, we identified the goals. We used the commonalities as a basis to determine the overall goals that emerged from the participant's responses. With this method, we ensured that goals are based on collective input rather than an individual perspective.



[Figure 2: This figure shows our Commonalities Identification and Analysis Board subsection where goals based on the commonalities]

Finally, we tried to identify user needs that are based on an interface system. By analysing the commonalities and understanding the goals, we were able to identify user needs that relate to an interface system.



[Figure 3: This figure shows our Commonalities Identification and Analysing Board subsection where we needs to be based on the overall user goals]

2.1.2 User Profiles, Personas, Scenarios

Creating 3 Personas, scenarios, and user profiles

June 24 - June 29

On June 24th we had a meeting to discuss the various similarities and patterns we found to create our hypothetical people. We decided to each do one persona, one user-profile and one scenario, one international and two first generation, the two would represent the 2 different categories most students fall into - for example, one takes public transport, the other drives themselves

User Profile 1:

Ryan Reynold

Age: 21 years old

Lives in Toronto Ontario

Studying Computer Science at York University

Persona 1: Ryan Reynold, Student at York University

About:

Ryan Reynold is a 21-year-old undergraduate student living in Toronto, Canada, majoring in Computer Science at York University. He is currently working as a part-time computer designer for STAPLES. He attends classes at York University but also relies on remote learning (recorded lectures) because he prefers to stay at home to study.

Equipment: Ryan owns an Apple and uses it for his academic work. He also has an iPhone

10 that he uses for communication.

Collaborates With:

Collaborates with fellow students in his courses for assignments, labs, and projects.
Collaborates with professors and teaching assistants for support and guidance to study..

Main Goals:

- Complete coursework and graduate early.
- Manage time effectively to mitigate commute time to study more.

Needs:

- Stable and fast internet connectivity for in-person learning.
- Better communication interface for quick access to chat with students and professors.
- Efficient and stable time management system to manage time that he often loses because of the commute time.
- Need better notifications about assignments, tests, or other curricular activities.
- A quick transit information interface system for a better experience in transit.

User Stories:

- As a first-generation student, I want access to reliable internet connections for in-person learning to participate in my classes and complete my assignments effectively.
- As a student, I want communication channels that provide collaboration and interaction with fellow students and professors to receive timely feedback.
- As a student with limited time management skills, I want a better interface system for effective time management to help me with in-person classes.

Responsibilities:

- Attend classes and actively participate in discussions and group projects.
- Complete assignments and submit them on time.
- Go early to classes and for the job without worrying about being late.

Pain Points / Frustrations:

- Often feels overwhelmed by his workload and struggles to manage his time effectively, resulting in missed deadlines and being late to classes.
- The commuting costs put additional strain on Ryan who was used to remote learning, making it challenging for him.

- Ryan prefers remote learning because it provides comfort and productivity, making it difficult for him to engage in in-person classes fully.

Scenario 1:

Ryan wakes up early in the morning and looks at his iPhone and goes through the internet to see the recent time for the transit to come. Although he would prefer an application that shows his recent transits right at the start of the iPhone window, he has to deal with it. Then he showers and gets ready for university, which takes about 30 minutes. After taking the first bus, he takes another train which takes around an hour and a half to get to the university. In these times he usually reads notes if it is necessary, but usually doesn't because it is hard to concentrate. This is a reason why he prefers remote learning classes compared to in-person. Also, he prefers an app that installs an interface with notes on the iPhone home page to quickly look at them. But usually, the applications available are cluttered with unnecessary functionalities that it is difficult to understand or handle, making him not want to use them.

After he gets to university, he usually finishes the courses in the afternoon and gets home early. Which is what he preferred most of the time, but he usually has to stay till night during their labs. Resulting in him having less time to get ready for the next day's work or assignments.

User Profile 2:

Rubaiz Momin

Age: 22 years old

Lives in Toronto Ontario

From Mumbai, India

Went to the Aga Khan Academy

Studying at UofT as an Undergraduate in Computer Science

Persona 2: Rubaiz Momin, a Student at the University of Toronto

“Cultural adjustment was one challenge as it was my first time meeting different cultures and it would be difficult to adapt to this big change.”

This student is 22 years old and lives in Toronto. He is an undergraduate student at the University of Toronto pursuing Computer Science. He studied at Aga Khan Academy for grade school. He lives at home with his family and commutes to campus.

Qualifications: 1 year experience in coop

Work Environment: Remote/Downtown in the HQ once a week on Wednesdays during coop term

Equipment: MacBook and smartphone

Collaboration:

- Peers from class
- Professors and TAs
- Friends from ISA (Ismaili Student Association)

Main Goals:

- Finish university with ample experience in the field from coop programs.
- Meet more people and increase your network amongst clubs and classes to get more opportunities.
- Use all the experience and connections to land a good job soon after graduation to financially support his family and himself.

Needs:

- Easy to understand and accessible communication method.
- A clear schedule that is easy to access with notifications on the date and time the course is starting.
- Consistently prioritize morning and evening prayers by going to the mosque.
- A better form of transportation, be it a car, to avoid any more TTC complications

User Stories:

As a student, I want to consistently improve my time management to have the best university experience.

As a student, I want to work better internships to gain more experience and become more financially independent

As a student, I want to do well in school to have better opportunities

Responsibilities:

-Responsible for doing well in school

-Keeping check of time and following a schedule to be able to get tasks completed and balance other aspects of life

-Responsible for travelling to campus and back alone

Pain Points / Frustrations:

-Fewer in-person recruiting based on skills and getting to personally know one another and instead relying on just the resume all due to COVID-19

-Overreliance on online interactions instead of face-to-face creates a gap in social interactions among peers and professors

-Government cutting the frequency of busses causing the commute to be at times uncertain and usually much longer to campus

Scenario 2:

Rubaiz wakes up early in the morning at 4:00 to pray and then finishes some work before going to university. Rubaiz would prefer to have an application where he can set a schedule to manage his time according to what day it is, but regardless he follows a set schedule. He then eats breakfast and showers and leaves his home for university which takes about 30 minutes. His travel time to his campus is an hour, however, he runs into an issue with the inconsistencies and infrequencies of the 34 TTC busses, which is why he wishes there was an application that could accurately tell him when the bus will come and whether there's a delay so he doesn't have to waste time waiting. Once he gets to university, he usually finishes his classes and labs by late afternoon or early evening, and so he would at times attend his ISA (Ismaili Student Association) clubs where he gets to meet his friends. He would then get home by night and thus would have to make a plan to decide on what he's going to do the next day. For this reason, he'd like an application or an interface in which he can pre-set a schedule that can show up to him every morning and as a result, he wouldn't have to worry about forgetting about his schedule or creating one every day.

User profile 3:

Jack Wu

About

Jack Wu is 18 years old and lives with his parents in Markham. He is in his first year studying computer science at York University. Jack has 2 siblings that he takes care of and also was working to support his family before he got laid off due to the pandemic. Because his parents are busy Jack takes public transportation to commute to school and pays for his lunch there. Jack is very social and outgoing and is looking forward to going in person to be able to make new friends and connections at school.

Persona 3: Jack Wu, Student at York University

Main Goals

- Graduate university with good grades and some job experience (Coop)
- Meet new people and make some connections to help in the future
- Get a job to help support my family and save up for the future
- Wants to own his car in the future

Needs

- Increase accessible seats for labs that are in the afternoon compared to nights.
- Guidance or a quick and accessible interface tool that manages time effectively prioritizing important tasks.
- External support and resources that help students to transition from remote to in-person.
- A quick and accessible communication tool that is easy to use and does not use too much data.
- A personal vehicle to get to and from school more effectively

User Stories / Quotes

- As a new student, I want to make new friends and connections, enjoy my time in university, and get help if I need it
- As someone who comes from a lower-class family, I want to work to support my family, to shoulder some of the load off them
- As someone who wants to be successful, I want to do well in school, to get a well-paying job in the future

Responsibilities

- Pay for their transportation and food for school.
- Solely responsible for doing well in school
- Get to school and back home on time
- Taking care of younger siblings

Pain Points / Frustrations

- Lost job due to COVID-19, experiencing some financial difficulties
- Hard to get to school on time because public transportation is not always reliable and takes much longer than
- Very hard to talk and interact over Zoom and didn't make any new friends
- Harder to focus in remote lectures because of so many distractions
- People don't take health and safety precautions seriously, not wearing masks, not staying home when sick

Scenario 3:

Jack wakes up at 6:00 am to get ready and it takes him about 20 minutes to leave the house to catch the YRT bus to get to his first destination which takes around 60 minutes. From there he takes the subway to get directly to school which takes 10 minutes. Overall including the walking between stops the trip takes him an hour and 30 minutes and costs 9$ with a student discount. He has on average 3 classes per day for about 5 hours. Jack lost his job due to covid so is experiencing some financial difficulties and sometimes skips eating lunch at school and even struggles to find time to eat something he brought from home. Jack tries to talk and connect with his classmates but finds it difficult sometimes because of the masks and social distancing. After his classes end around 3:00 pm, he takes the same route back home. He arrives at approximately 4:45 and eats lunch with his family at 5:00. He does his homework and any other extracurriculars for about 3 hours until 8;00. He then takes about 2 hours for personal leisure but often uses this time to help take care of his 2 younger siblings. At 10:00 he goes to sleep to get ready for the next school day

2.1.3 Establishing requirements

June 29 - June 30th

On June 29 we discussed how to establish functional and non-function requirements for our system and how to write the subsections and the sub-sub sections for each. We decided to have functional and nonfunctional requirements to fit each category of problem that students have and we each wrote 2-3 each.

Functional Requirements:

Returning In-Person Study and Improving the Transition Process:
[FR 01] The system shall provide a class schedule interface that shows students the in-person class schedule and where to find their classes.

[FR 02] The system shall provide a class schedule interface that shows students the in-person class dates.

[FR 03] The system shall provide a transition guide that offers tips to help students smoothly transition from remote learning to in-person study.

[FR 04] The system shall provide quick links for course information to students.

[FR 05] The system shall remind students of new updates on in-person classes regarding assessment, attendance, and any other important information.

Commuting:
[FR 06] The system shall provide users with real-time transit information to travel.

[FR 07] The system shall provide users with real-time traffic information.

[FR 08] The system shall provide users with real-time weather conditions on transit routes.

[FR 09] The system shall integrate with transit interface information to provide users with real-time bus/train delays.

[FR 10] The system shall implement real-time assistance to users to choose optimal commutes.

Health and Safety:
[FR11] The system shall persuade users to self-check for covid before attending university.

[FR 12] The system shall persuade users to follow respective health and safety guidelines.

Time Management:
[FR 13] The system shall include a task timetable in the interface to allow students to organize their lectures, assignments, quizzes, tests, and exams.

[FR 14] The system shall provide an optimal time management system if the user provides more information on time spent on their activities.

Social Interaction and Communication:
[FR 15] The system interface shall provide quick links to a discussion forum where students can engage in academic discussions with their peers or plan outdoor group activities where students can interact with people face to face.

[FR 16] The system interface shall provide quick links to discussion forums where students can ask questions to professors outside of class.

Resources and Technology:
[FR 17] The system shall provide users access to an online library of academic resources like library and other research.

Non Functional Requirements:

1. Commuting:

Look and feel:
[NFR 01] The system display shall be clear and organized to show each bus route, the expected arrival time, the location of the bus stop, the destination, expected delays, and weather and traffic information.

[NFR 02] The system display shall change every 15 seconds to display different bus information.

Usability and Humanity Requirements
[NFR 03] The system shall update the information present in the display every 15 seconds.

Performance Requirements
[NFR 04] The system shall show all the up-to-date public transport route information in the area, updating every minute.

Maintainability and Support Requirements
[NFR 05] Online chat support will be provided for any questions or concerns about bus routes or conditions.

[NFR 06] The system implemented a FAQ to ask questions or request support.

[NFR 07] The system shall provide bus route information 24/7 throughout the whole year to accommodate all student schedules.

Security
[NFR 08] The system shall provide users with a Problem Report to report their problems to be reviewed.

[NFR 09] The system shall alert students in a minimum 3 minutes if a dangerous situation occurs.

2. Health and safety

Look and feel requirements:
[NFR 10] The system displays a self-assessment covid screening before in-person classes that asks the user yes or no questions about how they are feeling, if they have been in contact with other people who were sick, and if they are experiencing any symptoms of covid 19.

[NFR 11] The system shall provide advice on their health based on the self-assessment.

Performance Requirements
[NFR 12] The system shall allow students 30 seconds to answer each question in the self-assessment.

[NFR 13] The system shall prompt the users to complete their self-assessment all 7 days at 9.00 am.

Usability and Humanity Requirements
[NFR 14] The system shall provide options for the user to change the language to their preferred version.

[NFR 15] The system shall provide users with an option of text-to-speech.

Maintainability and support requirements

[NFR 16] The system shall provide COVID support information links if the user is deemed infected.

3. Time Management:

Look and Feel Requirements:
[NFR 17] The system display shall organize the time spent at the university.

[NFR 18] The system display shall organize the time spent to finish work and other personal activities

[NFR 19] The system shall be customizable to include notes with different colors in the time management table.

Performance Requirements:
[NFR 20] The system shall provide the new timetable within 3 seconds given the new course or work-related information.
[NFR 21] The system shall notify the user of the activity that is next in line 10 minutes earlier.

Usability and Humanity Requirements:
[NFR 22] The system shall provide customization to change font size, font, colors, and layout.

Maintainability and Support Requirements:
[NFR 23] The system shall provide a brief demonstration when using the interface for the first time through some slides.

[NFR 24] The system shall have a FAQ section for information if the user is confused about how to operate the system.

4. Social Interaction and Communication:

Look and Feel Requirements :
[NFR 25] The system shall be customizable to include the user's notifications in the interface.

Usability and Humanity Requirements:
[NFR 26] The system shall provide a translation feature that allows the students to translate from their language to English.

[NFR 27] The system interface shall provide language customization options, from English to French.

Performance Requirements:
[NFR 28] This system shall show students notifications in 10 seconds they were received.
[NFR 29] The system's average response time for sending messages shall be within 1 second.
[NFR 30] The system shall have high availability with an uptime of 99.9% with uninterrupted communication.

Operational and Environmental Requirements:
[NFR 31] The system shall be compatible with Windows, MacOS, iOS and Android.

Maintainability and Support Requirements:
[NFR 32] The system shall update the communication section every Wednesday of the week.
[NFR 33] The system shall provide up-to-date documentation of the communication section to support administration.

Security Requirements:
[NFR 34] The system shall maintain the confidentiality of the user communications through encryption.
[NFR 35] The system shall check if the user is a robot or not if it's accessed through a new device.

Cultural and Political Requirements:
[NFR 36] The system shall adhere to privacy and policy.

[NFR 36] The system shall protect the consumer's privacy.

Legal Requirements:
[NFR 37] The system shall ensure measures to safeguard user data of recorded communications to protect confidentiality.
[NFR 38] The system shall ensure measures to safeguard user data of chats to protect confidentiality.

2.1.4 Use Cases

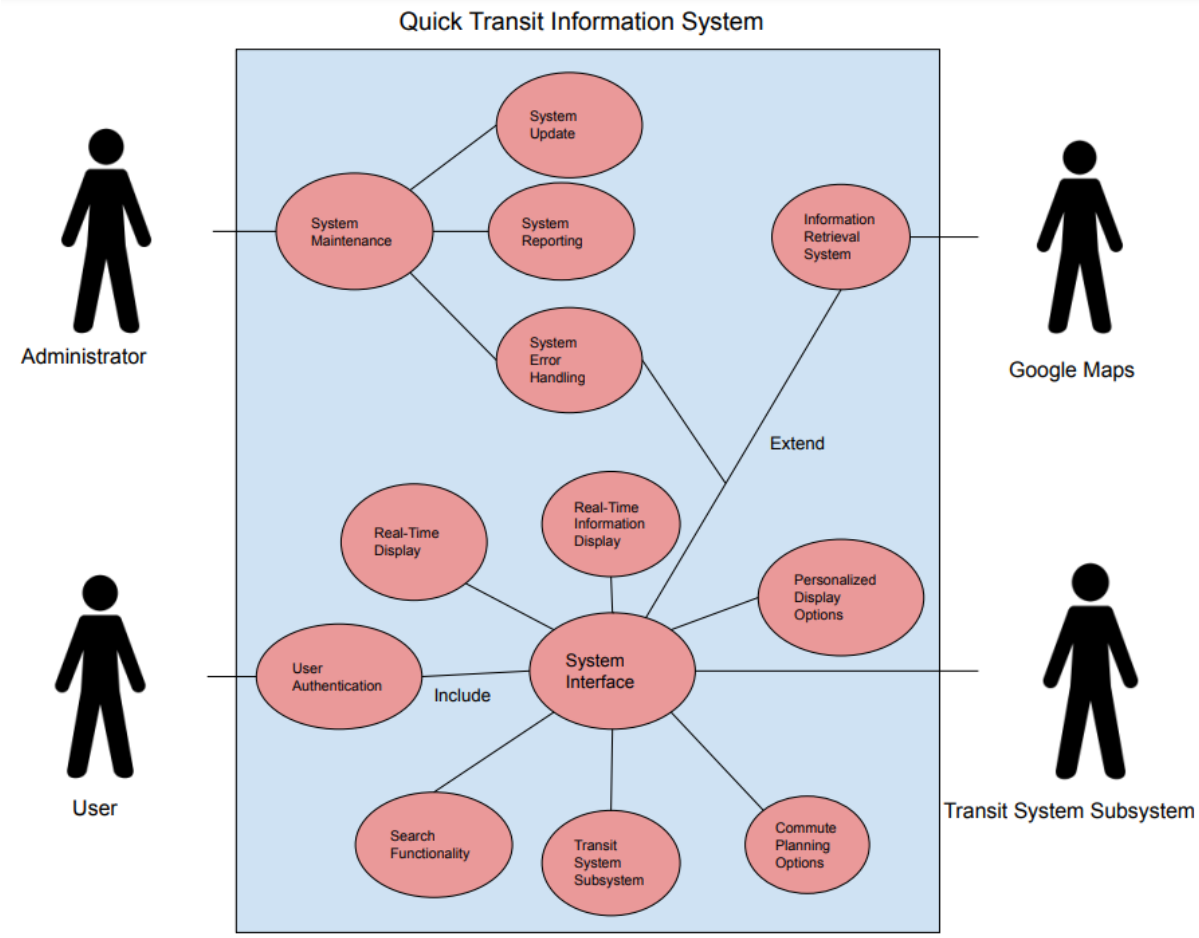
Use case 1

Quick Transit Information System

Actors: User, Transit System Subsystem, Administrator, Google Maps

How they interact:

- User Authentication: The student opens the system interface.
- System Interface: The system interface displays current transit information according to the schedule.
- Transit Subsystem: The user wants to update the information on what transit he wants to see.
- Search Functionality: The user opens the transit system in the interface and provides access to transit information.
- Real-time Information Display: The user can now search for specific routes, destinations, and bus or train schedules.
- Commute Planning Options: The system displays real-time transportation route updates, including expected arrival times, locations of bus stops, and delays given information from Google Maps.
- Information Retrieval System: Retrieve information from Google Maps in real-time to update the user options in real-time in the system.
- Personalized Display Options: The user can now plan a new commute by accessing this information and choose the best time to go and the expected arrival time.
- Real-Time Display: The user can choose to display this transit route in front of the main system interface for quick access.
- System Interface: The system then with these transit options displays the bus or train arrival time and delays in real-time.



[Figure 4: The use case diagram for Quick Transit Information System]

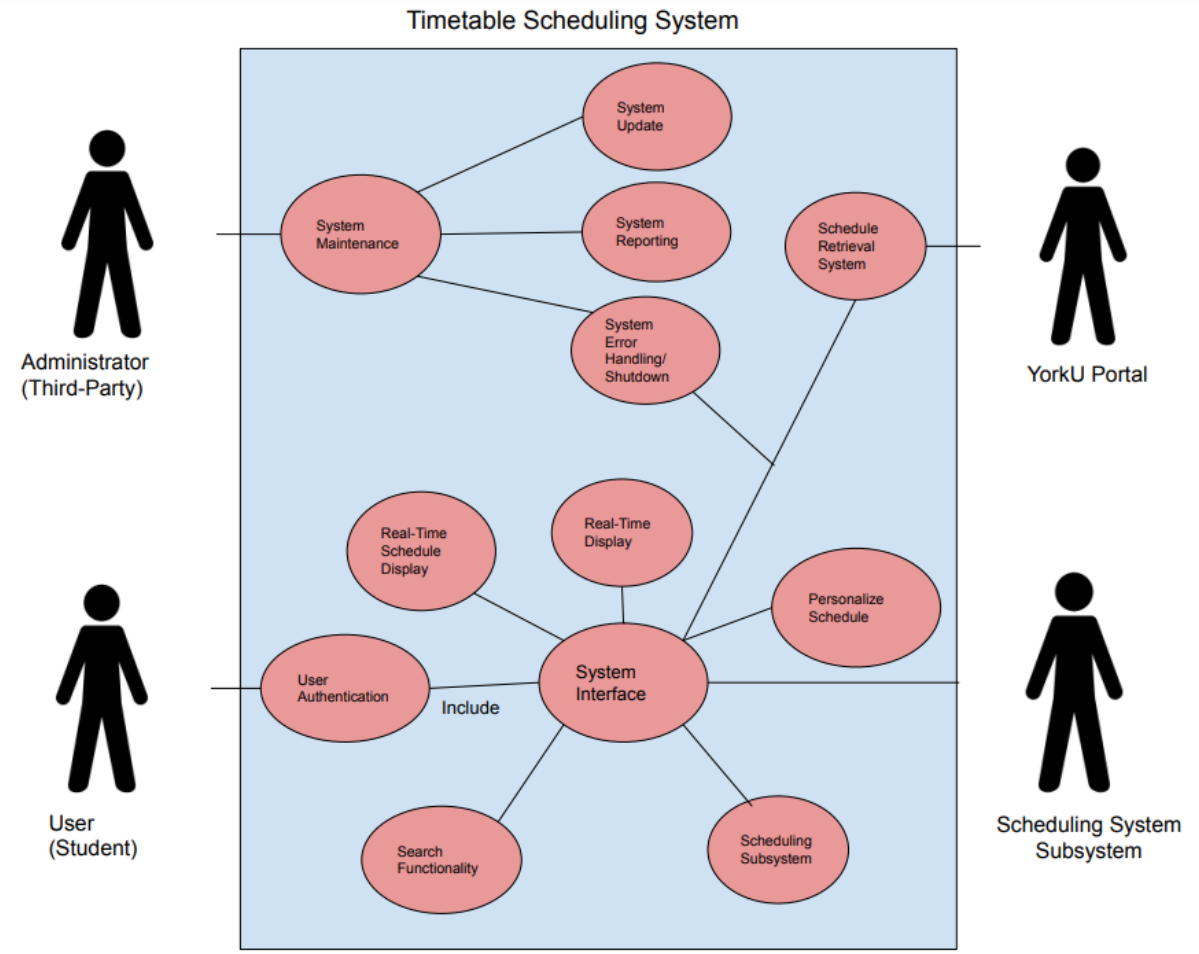
Use case 2

Timetable Scheduling System:
Actors: User, Scheduling system, Administrator, YorkU Portal

How they interact:

- User Authentication: The student opens the system interface.
- System Interface: The system interface displays the current daily schedule according to what's in the YorkU Portal.
- Scheduling Subsystem: The user wants to update the information on what classes/labs they want to see.
- Search Functionality: The user opens the scheduling system in the interface and provides access to information about when and where the classes are.
- Real-time Schedule Display: The display shows the current class that the user needs to attend or attend.
- Schedule Retrieval System: Retrieve information from YorkU Portal in real-time to update the user's current classes the user should attend.

- Personalise Schedule: The user can personalize their course schedule, adding or removing courses from giving notifications.
- Real-Time Display: The user can choose to display this daily schedule in front of the main system interface for quick access.
- System Interface: The system then with these scheduling options displays the timetable and additional information such as the location of classes in real-time.



[Figure 5: Use Case Diagram for Timetable Scheduling System]

Miro board pictures: