

The Design Process of a Time Management Application

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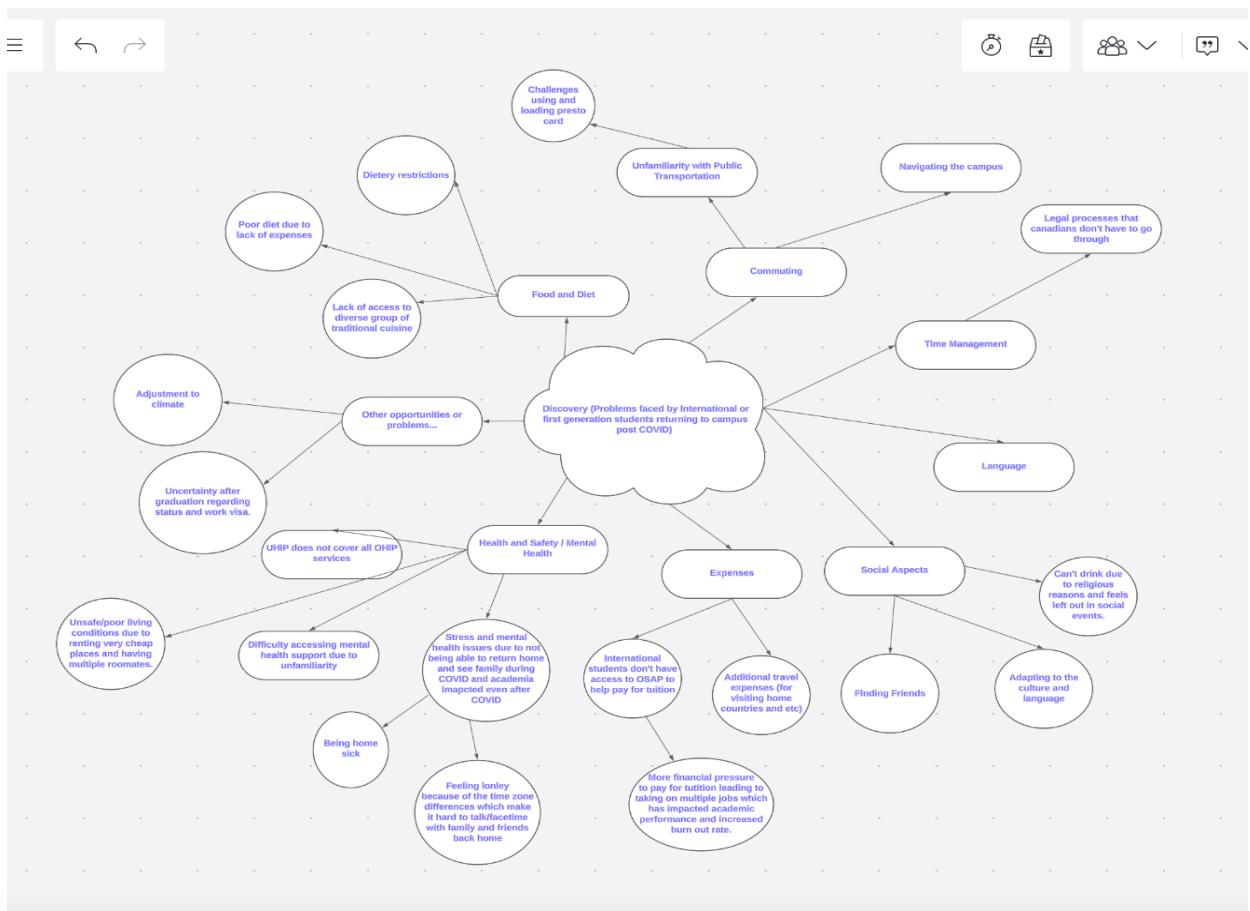
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2.1 Discover and Define

2.1.1 Method: Make Observations

I. The Brainstorming Method

Meeting board diagram and the result of observations and brainstorming sessions



1

¹ Link to the Blank board source file in case the image is not visible enough:
https://lucid.app/lucidspark/2b579ae2-7160-4657-8dde-0c62e2b8195a/edit?viewport_loc=-2343%2C-743%2C5839%2C3375%2C0_0&invitationId=inv_40d65521-e59c-439b-b9b3-d1f23a19d5d9

II. Meeting Reports

Meeting Report 1

Attendees

- Kavyan Nasseri
- Dayeon Lee
- Reza Rezazadehbehri
- Melika Sherafat

Absentees

- /

Topics :

- Deliberation on Data Gathering Method
- Task Allocation
- Selection of the Collaborative Platform
- Choice of Template for Finding Commonalities
- Participants of Brainstorming Sessions
- Next Meeting's Schedule

Progress :

During the meeting, we discussed the data gathering method and decided on using Brainstorming. Tasks were divided among team members, and we selected a collaborative platform and a template for finding commonalities. We also determined who should participate in

the brainstorming sessions and set the time for the next meeting. Productive and decisive outcomes were achieved, setting a strong foundation for future progress.

Meeting Report 2

Attendees

- Kavyan Nasseri
- Dayeon Lee
- Reza Rezazadehehrani
- Melika Sherafat

Absentees

- /

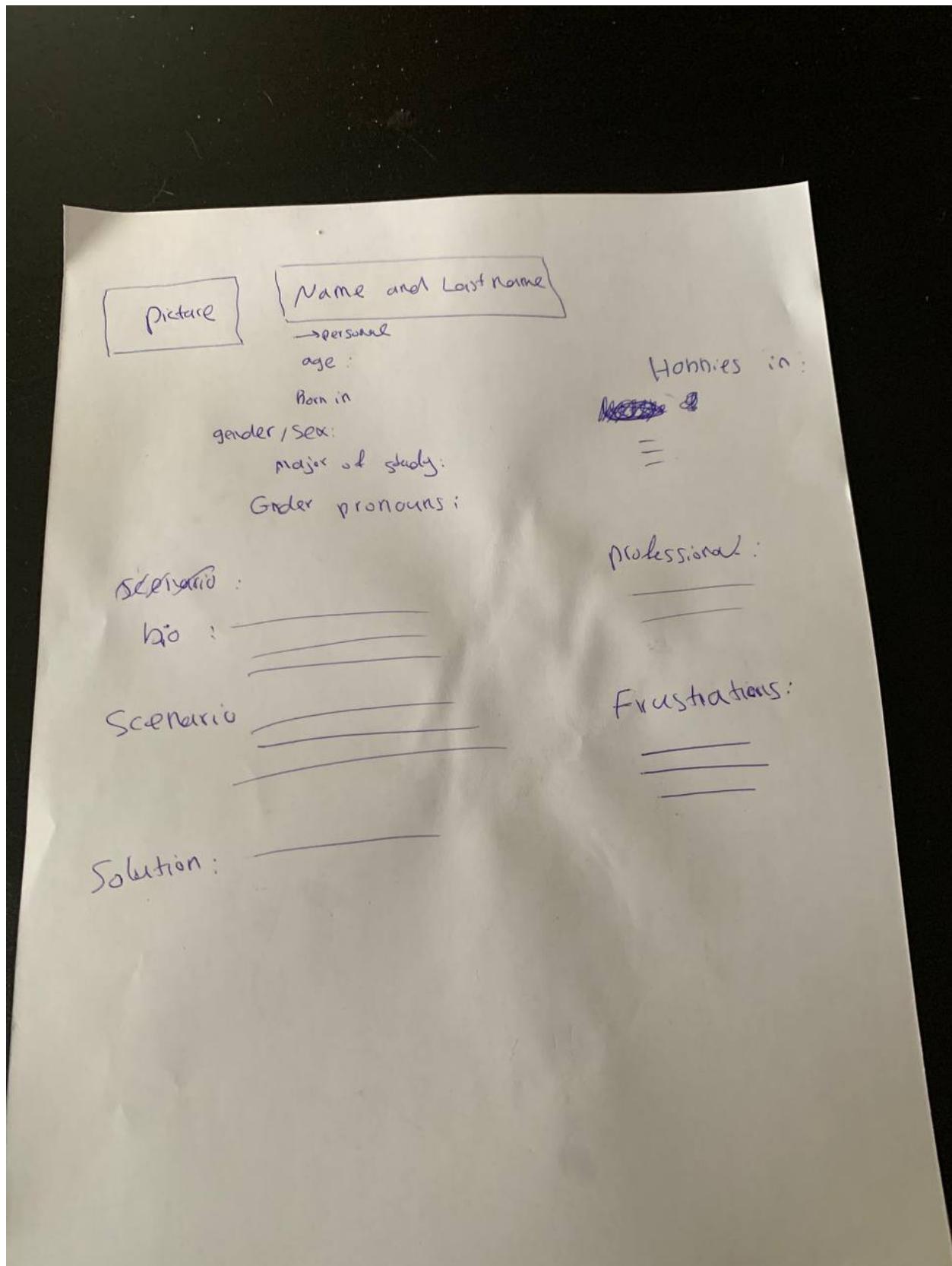
Topics :

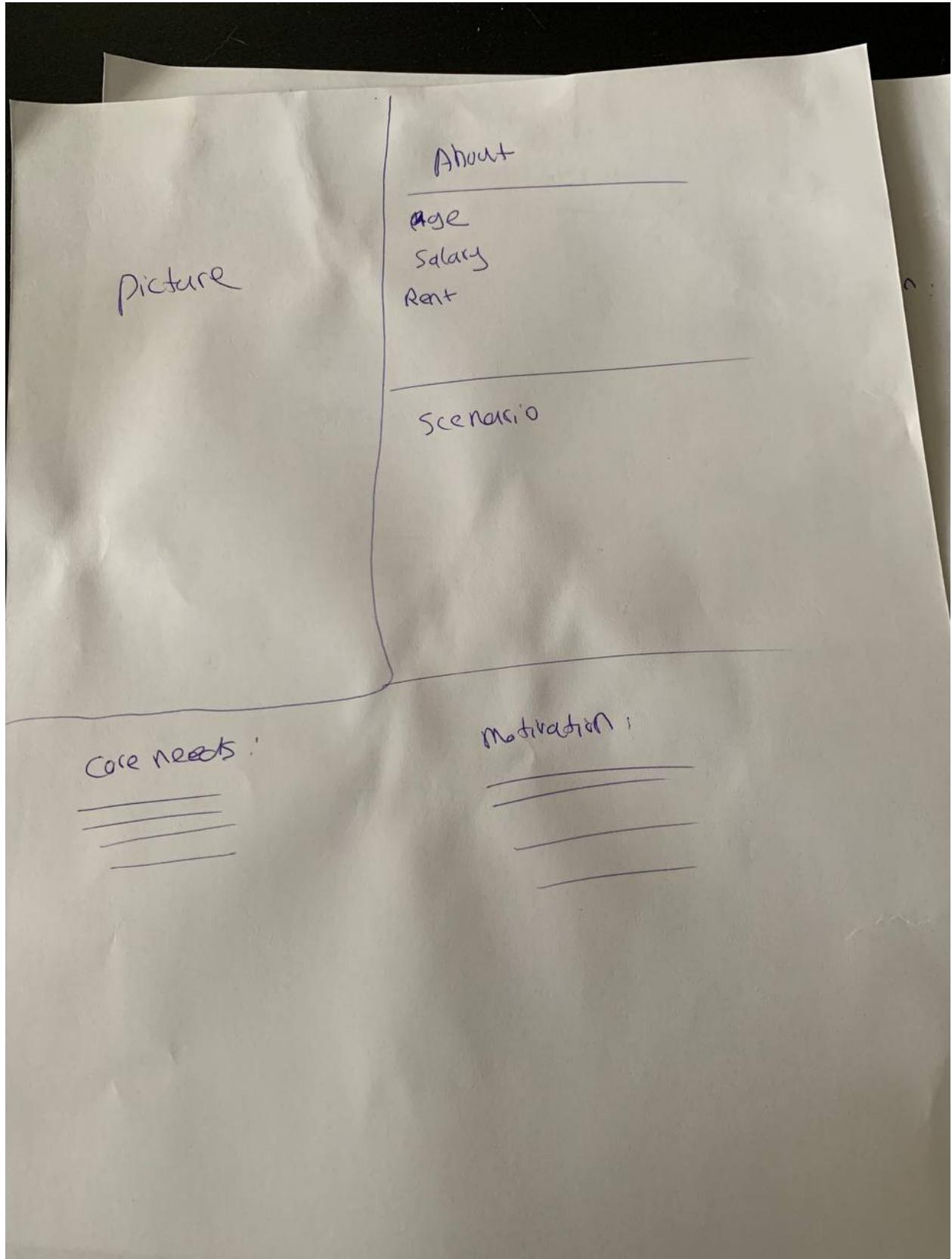
- Call With International Students
- Idea Tree
- Commonalities in Data
- User Profiles
- Persona Templates
- Next Meeting's Schedule

Progress :

International students were engaged through a virtual conference call to gather their ideas. These ideas were collected and organised using an online 'Idea Tree' platform. Patterns in the data were

analysed to create user profiles. The template for user personas was discussed, and a date for the next meeting was set.





Meeting Report 3

Attendees

- Kavyan Nasseri
- Dayeon Lee
- Reza Rezazadehbehrahi
- Melika Sherafat

Absentees

- /

Topics :

- Scenarios
- Functional Requirements
- Non-functional Requirements
- Next Meeting's Schedule

Progress :

During the meeting, scenarios were discussed and identified for each user persona. Both functional and non-functional requirements for the application were determined. Furthermore, the date for the next meeting was set to ensure continued progress.

Meeting Report 4

Attendees

- Kavyan Nasseri
- Dayeon Lee
- Reza Rezazadehehrani
- Melika Sherafat

Absentees

- /

Topics :

- Use Cases
- Formatting

Progress :

During the meeting, the application's use cases were discussed, and the preferred style for writing these use cases was decided upon. The entire document was then reviewed and refined to enhance its presentation and clarity. Additionally, the formatting for the document was determined to ensure consistency and visual appeal.

III. Data Commonalities

Commuting

Problem: Unfamiliarity with public transportation, such as which bus to take and how to use and load the presto card. Difficulty navigating campus to get to lectures and confusion on how to find lecture rooms in the buildings.

Opportunity for design: A guide on how to use and load presto cards can be displayed at every bus stop, or QR codes can be placed for people to scan, which will take them to a how-to-use guide page. In addition, people can select what language they are comfortable with. The York University interactive map should include features that show students current location and the lecture hall to which they are trying to go. Augmented reality can also be used to show a path when the phone is held out in front.

What needs to be fixed: Awareness of how to use Presto needs to be more widely spread through orientation programmes or peer mentors. Offering multilingual assistance at information desks or through virtual chatbots can address language barriers and improve overall communication.

What needs to be enhanced: The Yorku interactive map can be enhanced, allowing students to search for specific lecture halls and giving step-by-step directions on how to navigate campus, including what floor the student's lecture hall is on.

Unaddressed needs: Multilingual support. Language support is needed when navigating the public transport system. Cultural differences in building layout

Time Management

Problem: Students have difficulty balancing academic, personal, and social commitments leading to stress and reduced performance.

Opportunity for design: Develop a comprehensive yet intuitive scheduling tool that factors in international students' unique needs.

What needs to be fixed: Existing systems may not fully consider the cultural, language, and timezone complexities international students face.

What needs to be enhanced: The system could offer personalised recommendations for optimal study hours, reminders for self-care, and schedule social activities.

Unaddressed needs: Cultural and language support, personalised tips for time management, integration with university-specific calendars and events.

Language barriers

Problem: International students, mostly coming from countries where English is not the primary language, face challenges in adapting to a new language, compounded especially by the absence of face-to-face interactions for about 2 years due to the pandemic.

Opportunity for design: Create a tool that enables students to schedule meetings and engage in English conversation practise with each other at designated times.

What needs to be fixed: Currently, many applications and tools primarily concentrate on individual language learning through methods such as flashcards or online lessons. However, learning a language is fundamentally a social challenge that requires engagement with others.

What can be enhanced: Some language tools attempt to address the issue of no learning partners by creating pre-written "real-life" conversations. However, many of these conversations do not accurately represent how people truly talk. It is possible to find conversations that feature both basic English skills and natural-sounding dialogue.

Unaddressed needs: The unaddressed aspect is the need for a system that can automatically connect individuals who are facing similar challenges. Additionally, there is a need for a tool that can effectively determine mutually suitable time slots for meetings.

Social Aspects

Problem: International students often struggle with socialising due to language barriers, cultural differences, and difficulty finding opportunities to connect with peers experiencing similar challenges.

Opportunity for design: A social networking platform tailored for international students can facilitate connections, host cultural exchange activities, and serve as a platform to voice their concerns.

What needs to be fixed: Existing social networking platforms may lack specific features accommodating the unique experiences and challenges of international students.

What needs to be enhanced: Features promoting cultural exchange, local event suggestions, and a safe space for students to share experiences could be added to the existing platforms.

What needs to be enhanced: The need for resources that help build a local community and support cultural exchange remains unaddressed in current systems.

Unaddressed needs: The need for resources that help build a local community and support cultural exchange remains unaddressed in current systems.

Expenses

Problem: The need for resources that help build a local community and support cultural exchange remains unaddressed in current systems. International students often face high costs of living, tuition fees, and unexpected expenses in a new country, which can lead to financial stress.

Opportunity for design: A financial management tool tailored for international students could provide guidance on budgeting and expense tracking and provide information about financial aid, scholarships, part-time job opportunities, and the cost of living.

What needs to be fixed: Existing financial management tools may not cater specifically to the financial challenges and specific needs of international students.

What needs to be enhanced: Features could be enhanced to provide more localised cost of living data, guidance on local financial systems, and information on specific resources available for international students.

Unaddressed needs: There is a need for more personalised financial management tools that address the unique financial challenges of international students. Such a tool should provide a comprehensive understanding of the financial system of the new country, the local cost of living, and available resources.

Health and Safety / Mental Health

Problem: International students returning to university in a new country often feel homesick, especially when their families have been unable to visit them for two years.

Opportunity for design: Establish communities where students from the same country can gather and create a sense of home by cultivating smaller simulated versions of their own countries.

What needs to be fixed: Universities should try to provide a greater range of inclusive events, facilitating a smoother transition for students into their new environment.

What needs to be enhanced: An improvement to these events would be to include cultural elements created by individuals from the respective countries, allowing students to experience an authentic environment.

Unaddressed needs: Student-driven cultural events often lack strong participation from first-generation students, who may feel less attached to their own cultures. There is a need for universities to manage these events.

Food and Diet

Problem: Accessing familiar, nutritious, and affordable food options can be challenging for international students.

Opportunity for design: Create an interactive system that connects students to local grocery stores, restaurants offering their native food, or meal-sharing platforms within the student community.

What needs to be fixed: The current systems might lack customization based on students' dietary preferences, cultural food choices, and budget constraints.

What needs to be enhanced: The system could provide recipes for easy, healthy meals using locally available ingredients and suggest grocery lists that fit the student's budget.

Unaddressed needs: Tailored dietary recommendations, connection to local resources, community building among international students.

Other opportunities or problems

Problem: Uncertainty after graduation regarding status and work visa.

Opportunity for design: An interactive online system to guide students step by step on future steps; Establish alumni networks or associations that specifically cater to international graduates; Dedicated immigration advisors; Advocacy for extended Post-graduation work permit duration

What needs to be fixed: Existing systems may not fully provide guidance on post graduation status and work visa.

What needs to be enhanced: Information on post graduation status, work visa and future career steps; Support from alumni networks and associations; Personalised guidance from immigration advisors.

Unaddressed needs: Multilingual support and personalised guidance post graduation that addresses specific visa/permit needs for different countries.

Commonalities Found

From the data above we can see the shared struggle among international and first-generation students: The shortcomings of current systems in addressing cultural and linguistic differences, and a lack of awareness about available services. There's also a significant need for supportive communities to mitigate feelings of isolation. The "Need for tailored resources" emerged as a primary focus for design intervention. Hence, our primary objective should be to create a comprehensive, user-friendly, and multilingual platform, specifically designed to meet these needs, such as an interactive and personalised time management system.

2.1.2 User profiles, Personas, Scenarios

User Profiles

User Profile 1

- User is a young adult male.
- User is an international student.

- User is not a native English or French speaker.
- He is pursuing a bachelor's degree in the field of computer science and technology.
- He has a strong work ethic.
- Prioritises savings and mindful spending.
- Financially independent.
- Worries about his future career success.

User Profile 2

- User is a young adult female.
- User is a first-generation student.
- User is a native English speaker.
- She is pursuing a bachelor's degree in the field of Medical science.
- She is academically driven and a high achiever.
- Feels academic pressure and high expectations from her parents.
- Financially dependent on her parents.
- User has a good diet because she is an athlete.

Personas

Persona 1



Amir Pirooz

AGE	21
JOB TITLE	Student
STATUS	Single
LOCATION	North York, ON

ABOUT

Amir is an international third-year Computer Science student at York University. Amir's parents took out a huge loan to pay for his tuition fees. However, he understands the importance of taking responsibility for his living expenses, so on top of being a full-time student, he is also working part-time at a small Persian restaurant. Currently, to save money, he lives in shared housing with five other roommates and keeps a strict weekly budget. Amir is a tech-savvy individual who embraces technology in his daily life to improve his work efficiency and simplify tasks. He is a family-oriented person who believes in spending lots of quality time with family and friends.

GOALS

- Obtain a Computer Science degree and secure employment at a top-tier technology company.
- Purchase a house for his parents to ensure their comfortable retirement.

HOBBIES

Online Gaming
Hiking



Skills

Strong work ethic
Organizational abilities



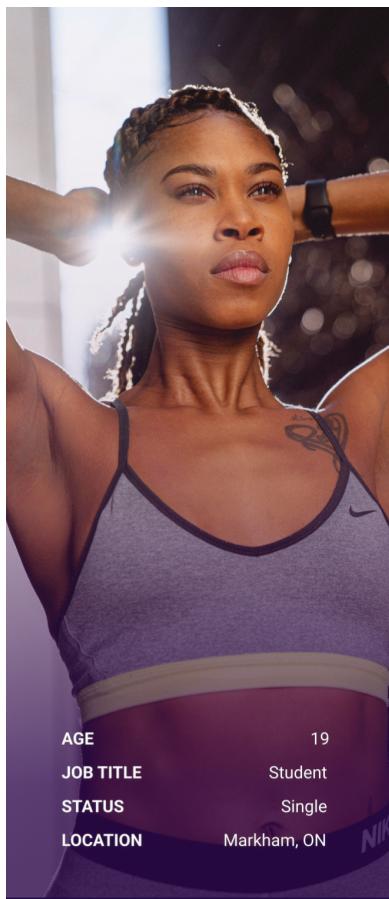
MOTIVATION

- Efficiency
- Cost-effectiveness
- Community orientation

FRUSTRATIONS

- Lacking support in his academic life.
- Facing difficulties in making friends due to language and cultural barriers, leading to spending a significant amount of time online.
- Fear of not finding a high-paying job.

Persona 2



Julia Agrinya

ABOUT

Julia is a first-generation second-year Medical Science student at the University of Toronto. Her main priority is her education, and most of her time is dedicated to studying and competing in soccer tournaments. She lives with her parents, as they don't want her to move out in order to save money. The rest of her time is dedicated to volunteering at vet clinics, since she has a great passion for animals. While she is doing well academically, she feels overwhelmed and stressed out most of the time due to her and her parents high expectations for her to succeed. She wishes she had more time to socialize and make friends.

GOALS

- Maintaining her position on the honor roll and graduating at the top of her class in Medical Science is her goal.
- Getting accepted into Harvard Medical School.
- Making her parents proud by being the first person in her family to graduate from university.

HOBBIES

Volunteering
For Sick
Puppies



Skills

Communication
Leadership



MOTIVATION

- Productivity
- Forming Friendships
- Excelling Academically

FRUSTRATIONS

- Doesn't feel good enough in general.
- Doesn't feel supported by her friends and family
- Procrastination has become a habit for her, which leads to anxiety regarding her studies
- Lacks knowledge of the available systems, leaving her uncertain about seeking mental health advice.

Scenarios

Scenario 1

Amir Pirooz really values doing well academically and working, which keeps him very busy all the time. He is so busy, in fact, that he keeps missing the small window of time to Facetime his family back home. When he does have a bit of time, it is too late for him to call his parents, as it will be nighttime there and they are sound asleep.

One Saturday morning during exam season, he was up early and walking to the library to study when he was suddenly hit by sadness as he had missed several calls and hadn't spoken to his

family in several weeks. He decided then and there that he would schedule his time better so that he could make time for his family and catch up with them.

The system allows users to input their class schedule, work hours, assignment deadlines, and other important tasks. The system will then automatically organise his schedule to prioritise academic deadlines and suggest optimal times for study, work, meals, and social activities. Best of all, a time zone for a different area can be set and will schedule the best times to reach people from that country, as well as allowing multiple users to view the schedule generated. The system prompts him to enter all of the necessary information.

That Saturday night, he came back home and inputted all of his important academic deadlines and work schedule. Afterwards, he inputted his family's hometown location and hit generate. He excitedly facetimes his family and sent them a link so they could see the generated calendar schedule as well. All of them saw in yellow the best times they could call each other during the day and at night. They all agreed to call each other within this time and were all optimistic that they would be able to speak more frequently.

Scenario 2

Julia is a highly motivated second-year Medical Science student. One day, she wraps up her soccer practice late in the afternoon at the University of Toronto. While heading back home, she can't help but worry about her workload for the evening - studying for her upcoming exam, finishing an assignment, and preparing for her volunteer shift at the vet clinic tomorrow.

When she gets home, Julia logs into the time management system on her laptop. She appreciates the system's clean and easy-to-navigate interface. On the dashboard, she can see her study goals for the day, as well as her work for the vet clinic tomorrow. The system provides a recommended schedule for the evening by breaking down her study time into manageable chunks with short breaks in between to prevent burnout. It even suggests incorporating a quick online workout video during one of her breaks to help maintain her physical wellbeing.

She reviews the plan and makes some minor adjustments to align with her preferred study method. She also notices the system has automatically scheduled time for dinner with her family and a short leisure break to watch her favourite TV show. It's a relief to see her responsibilities visually laid out in a manageable way.

Julia also notices a newly added feature on the system that connects students with available mental health resources on campus. The system provides information about how to schedule an appointment with a campus counsellor or join a peer-support group, which she decides to explore further in her own time.

Before beginning her studies, she briefly interacts with the system's built-in community feature where students share their experiences, study tips, and words of motivation. She leaves an encouraging message for her peers and logs off, feeling a sense of community despite her isolated academic journey.

With a clear mind and a structured plan, Julia feels less overwhelmed and more in control. She begins her study session, trusting in the time management system to help balance her academic life, personal responsibilities, and wellbeing.

Overall, the time management system provides Julia with a structured plan that takes into account her academic, personal, and mental health needs. It fosters a sense of community and support that empowers her to navigate her life as a first-generation university student.

2.1.3 Establishing Requirements

Functional Requirements

1. User Registration:

International students should be able to create user accounts using the application by entering their email addresses, names, and student identification numbers.

2. Scheduling:

The application should provide a scheduling feature to assist users in setting aside time for conversation with their parents.

3. Management of Parental Contact

The program requires to provide a feature that allows users to enter and save the names, contact information, and email addresses of parents or other family members who live abroad.

4. Track communications

Users should have access to their history of communications, which should include timestamps, lengths of time, and the type of communication (such as a phone call or video call).

5. Task Management

Task management should allow users to add, modify, and delete tasks as well as define due dates and importance levels.

6. Privacy and Security

The app should guarantee the privacy and security of user data, including contact details and communication logs.

7. Language Support

To meet the various demands of international students, the application should offer multilingual support.

8. User Feedback and Support

The program needs to have a feedback feature that allows users to make suggestions, report problems, or request help.

9. Data backup and recovery

The program needs to regularly back up user data to avoid data loss due to errors in the system or other technological problems.

10. Cross-Time Zone Support

The program should consider the time zone differences between users and their parents who live in other countries.

Non-Functional Requirements

1. Look and Feel Requirements

1.1 Visual Design: The program should have a simple to use, visually pleasing, and simple to use interface.

1.2 Consistency: The application should keep the same design features throughout all screens and interactions, such as colour palettes, formatting, and layout.

2. Usability and Humanity Requirements

2.1 Sense of Intuitiveness: Even for users with limited technological expertise or experience, the application should be simple to understand and use.

2.2 User guidance: To assist users in making the most of its features, the program should offer tooltips or clear, informative instructions.

3. Performance Requirements

3.1 Response time: The program must react quickly to user input to avoid delays and ensure a positive user experience.

3.2 Flexibility: The program must be able to handle an increasing volume of users and information without noticeably affecting its performance.

4. Operational and Environmental Requirements

4.1 Platform Compatibility: To ensure universal accessibility, the program should be compatible with widely used operating systems, browsers, and devices.

4.2 Reliability: There should be barely any downtime or interruptions to the application's availability and functionality during regular business hours.

5. Maintainability and Support Requirements

5.1 Modularity: To enable future improvements, bug repairs, and feature additions, the application should be created in a modular and adaptable way.

5.2 Technical Support: To guarantee fast assistance when required, the program should offer a method for users to request technical support or report problems.

6. Security Requirements

6.1 Data privacy: The program needs to protect user information and guarantee respect to applicable data protection laws, against illegal access or disclosure.

6.2 Authentication and Authorization: To restrict access to important information and functionality, the application should use secure user authentication and authorization protocols.

7. Cultural and Political Requirements:

7.1 Cultural Sensitivity: The program should be sensitive to and respect cultural diversity, avoiding any content or features that might be harmful or improper cultural settings.

7.2 Political Neutrality: The application must be free of any bias or promotion of any ideology or philosophy.

8. Legal Requirements

8.1 Compliance: Regarding data protection, privacy, accessibility, and user rights, the application shall abide by all applicable laws, rules, and industry standards.

8.2 Respect for intellectual property: The application is forbidden from using any software or resources that are subject to copyright restrictions without permission.

Online Source :

"Mastering the Requirements Process: Getting Requirements Right" by Suzanne Robertson and James Robertson.

<https://www.volere.org/>

2.1.4 Use Cases

Use Case 1: Scheduling Automation

1. The product asks for login information
2. The user inputs their username and password
3. The product provides an empty timetable for user's "Fixed" schedule
4. The user inputs timeslots representing the fixed section of their schedule
5. The product asks for their "Flexible Tasks" (Tasks that can be moved around)
6. The user inputs a list of activities/tasks eg. Facetiming parents, practising piano
7. The product asks for the priority of said activities
8. The user prioritises their flexible activities using a drag-and-drop list
9. The product asks for the task's estimated durations
10. The user inputs the estimated times

11. The product asks for Blocked Intervals, times where the user does not want anything in their schedule
12. The user inputs their unavailable times in the table
13. The product asks for deadlines associated with each activity
14. The user inputs all deadlines
15. The product takes into consideration the priorities and the deadlines and creates multiple manageable schedules
16. The user rates each schedule
17. The product selects the highest rated schedule as the main plan and starts sending notifications for the deadlines

Alternative Courses :

1. If the login information is invalid
 - a. The product shows error message
 - b. The product goes to step 1
3. If the user does not have a Fixed Schedule
 - c. The user presses the skip button
 - d. The product skips to step 5
8. If the activities do no have any order to them
 - e. The user presses the skip button
 - f. The product skips to step 10

Use Case 2: Connecting to Mental Health Resources on Campus through the Time Management System

1. User logs into the Time Management System
2. User navigates to the “Health Resources” tab. This tab is present on the system’s main interface.
3. System displays a list of available mental health resources. This list consists of services such as counselling, therapy, mental health workshops, and peer support groups. Each resource contains a brief description and contact details.

4. User selects the “Counselling Services” option. The user is interested in exploring one-on-one counselling options provided by the university.
5. System shows detailed information about the counselling service. This includes information about the service, how to book an appointment, what to expect, confidentiality policy, and benefits of seeking counselling.
6. User decides to schedule an appointment by clicking on the “Schedule Appointment” button.
7. System redirects the user to the university's counselling service scheduling portal. On this portal the user is able to choose a convenient date and time and also specify whether they want the meeting to be in-person or remote.
8. User schedules an appointment and confirms by clicking on “Confirm appointment”.
9. System sends a confirmation to the user's email and updates the Time Management System's calendar with the counselling appointment
10. The user ends their session and may log out of the system.

Alternative Courses :

1. If the login information is invalid
 - a. The product shows error message
 - b. The product goes to step 1