Building a Community - Haskayne School of Business

Creating a Unified System with Discord

Presented to Dr. Raymond Patterson
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BTMA 333 - L01

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Executive Summary

Problem Description

The problem of a lack of community and peer-to-peer relationships stems from the feeling of isolation which has been amplified due to Covid-19. Adding to this, the University of Calgary (UofC) is known as a commuter campus where the focus is on teaching rather than creating a traditional college environment. This affects students because they miss out on the typical “University Experience”. The impact of this is a lack of community which is one factor that contributes to the mental health of students. The main problem we are facing during Covid-19, is that Haskayne is lacking an online space where students can build a community. A successful solution would be to create a system that focuses on increasing communication amongst students. A platform that can be used for class discussion, group work, and individual conversation would assist in this solution.

Business Context

Our client, Susan Basudde, is an Academic Development Specialist in the Haskayne Undergraduate Office. One role that Susan has at the Haskayne School of Business is to assist undergraduate students who may be experiencing mental health concerns. Frances Donohue and Tina Johnson-Adams are also involved in a related project which consists of the development of a Haskayne student volunteer coordination system.

Recommendation

The goal of our project is to address the issue of mental health which arises from the feeling of isolation due to the lack of peer-to-peer communication and a low sense of community among students. Our proposed project implements a class discord for every classroom where students can communicate with each other in real time. The proposed solution presents a proactive solution to the problem of mental health. Many students are familiar with the use of Discord, which is why implementing class discord groups would increase the likelihood of students actively engaging with their peers in their respective groups. We feel that by implementing discord groups, students can meet more people in their university life and foster more meaningful relationships. This would increase the sense of community among students and provide them with an overall better experience which would ideally result in better mental health among students.

Cost Analysis

Cost Breakdown		
	1st year	**2nd year**
Discord Nitro	$99.99	$99.99
MEE6 Bot	$113.04	$0.00
Total	**$213.03**	**$99.99**

Table of Contents

Planning

1. **Problem Description**

2. **Problem Analysis**
   - 2.1. Fish Bone Diagram
   - 2.2. Pareto Table
   - 2.3. Pareto Diagram

3. **Project Scope/Quality**

4. **Risk Analysis**
   - 4.1. Potential Risks
   - 4.2. Costs & Benefits
   - 4.3. Stakeholders

5. **The System**
   - 5.1. System Characteristics
   - 5.2. System Boundaries

6. **System Dimensions**
   - 6.1. System Constraints
   - 6.2. Feasibility Analysis – TELOS

7. **Project Schedule -** GANTT

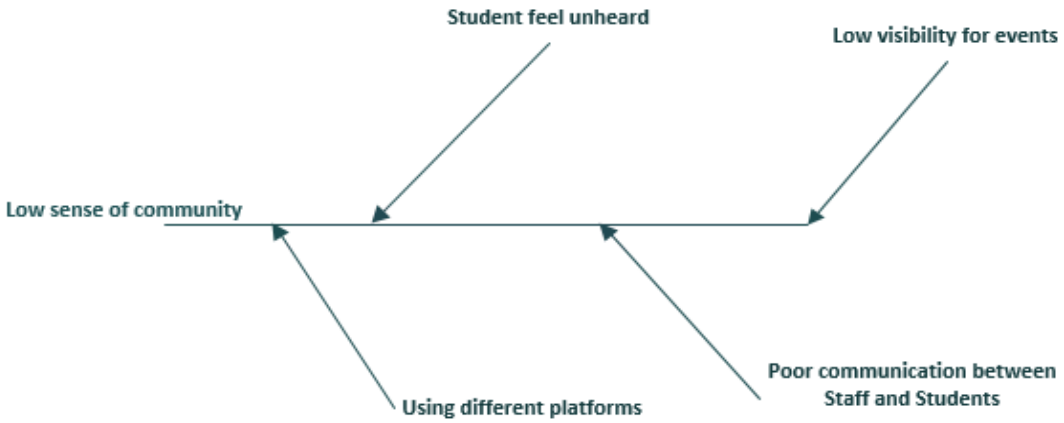
1. Problem Description

The problem of a lack of community and peer-to-peer relationships stems from the feeling of isolation which has been amplified due to Covid-19. Adding to this, the University of Calgary (UofC) is known as a commuter campus where the focus is on teaching rather than creating a traditional college environment. This affects students because they miss out on the typical “University Experience”. The impact of this is a lack of community which is one factor that contributes to the mental health of students. The main problem we are facing during Covid-19, is that Haskayne is lacking an online space where students can build a community. A successful solution would be to create a system that focuses on increasing communication amongst students. A platform that can be used for class discussion, group work, and individual conversation would assist in this solution.

2. Problem Analysis - FishBone Diagram, Pareto Table, Pareto Diagram

One of the main issues that students are facing, especially during the COVID-19 pandemic, is the low sense of community within the campus. They feel as if there is not that social interaction and community aspect that often you find in university settings. The causes of this might be that students feel unheard. Many students feel the university does not make an effort to reach out to the students to advertise or communicate events. There are also multiple platforms that are used that can cause communication to go unseen or unheard. As well as emphasis on communication between staff and students is not there especially when it comes to mental health. All of these issues combined lead up to our root cause that students feel a low sense of community on campus and amongst their peers.

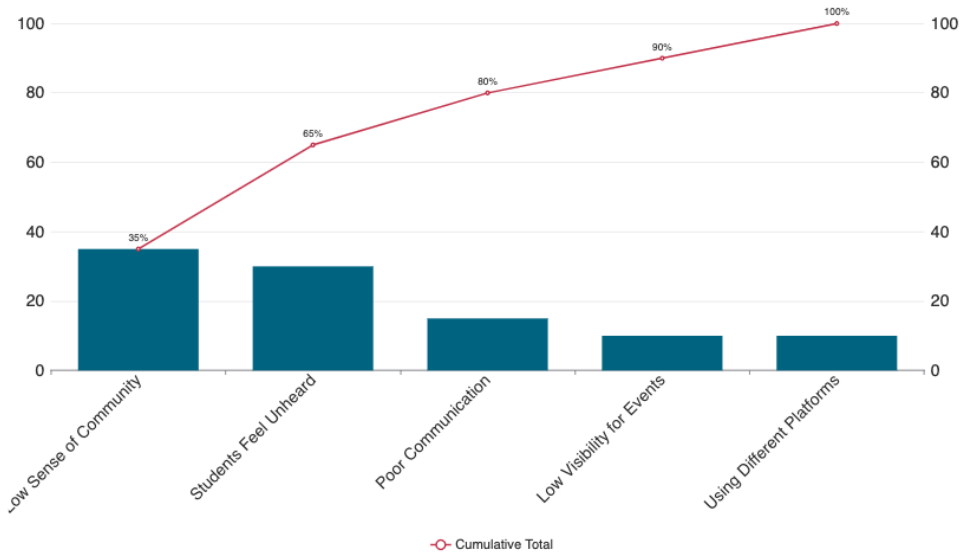
FishBone Diagram



Pareto Table

Pareto Table		
Cause	**Frequency**	**Cumulative Frequency**
Low Sense of Community	35%	35%
Students Feel Unheard	30%	65%
Poor Communication	15%	80%
Low Visibility for Events	10%	90%
Using Different Platforms	10%	100%

Pareto Diagram



3. Project Scope/Quality

The solution is to move students and faculty to a platform that can be used to facilitate class discussion, group work, and individual conversation. This will in turn promote peer-to-peer interactions and assist students in developing meaningful relationships to dismiss the feeling of isolation. For this project to be successful it must focus on promoting the student voice and creating a safe space for students to interact. The solution will be rejected if it lacks usability, accessibility, and completeness. Through this solution, Haskayne students will have a platform where they can interact with their classmates. By enrolling in their current classes, they will be invited to join the class discord consisting of others in their class. From here, they can post class discussions, create private group chats with those in the class, and create a private individual chat with another student. If successful, students will move off of third-party apps thus minimizing the number of platforms needed for communication (e.g. WhatsApp, Messenger, Slack, iMessage, Email).

4. Risk Analysis - Potential Risks, Costs and Benefits, & Stakeholders

Potential Risks

Potential Risks	
People	A big risk with this solution is that it will fail to address the different roles and groups that students associate with at the University of Calgary. It is vital that for a solution to work that everyone involved feels heard and has equal access to the resources.
Process	A main concern for the process is that students will not use something that lacks ease of use and is not organized. We need to make sure that the system has few bugs and that the experience is seamless. Students will want their chat rooms and events available easily.
Assets	Maintaining the integrity of student and faculty data is of the utmost importance. The risk of leaking this data could be devastating to the individual especially since this information could include sensitive medical data.
Customers	The main customer focus are the students of Haskayne so there will be risk involved in catering to this audience. Since we have such a diverse student body, we have to make sure that all students feel welcome and can access the system easily.
External Partners	There is a risk of external partners not wanting to be involved as references or referrals. There are also partners that wish for the system to have a minimum performance outcome, and there is a risk that the system will not reach expectations.

Cost and benefits

The tangible costs of the system will consist of the developing, running, and maintaining the system. The development cost will be comprised of the subscription for the premium servers and security bots. The running cost is the cost of yearly subscription for the server. The intangible costs for developing this system are the student wait time and declining mental health while waiting for the new system to be ready.

The tangible benefits of this system would be increased student engagement leading to higher enrolment and external student activities. If our school is seen to have high student engagement and good mental health it would lead to higher grades and therefore make Haskayne School of Business more attractive to future students. The intangible benefits of this system would be the increased public perception of Haskayne both inside and outside the university.

Key Stakeholders

Haskayne Students

Haskayne students do not have a unified platform to facilitate communication amongst their peers and professors. Without an effective platform for communication students may feel isolated. These platforms will allow for class related discussion but also be a space for students to get to know each other. There is also potential for this platform to increase productivity by being a one-stop-shop for class work, group work, and peer-to-peer networking.

Haskayne Faculty

Improving student communication and community can impact mental health and increase support. By supporting those enrolled in the Haskayne School of Business we may actually see an improvement in participation and academic success. Additionally, these platforms can connect students with the faculty and create networking opportunities. Faculty will have a platform that they can use to better answer student questions, see class discussions, and increase participation. If professors can promote the use of these platforms there will be a high likelihood of acceptance from the student body.

Susan Basudde - Academic Development Specialists

By improving communicative platforms and connecting students with their peers we hope to increase connections amongst students thus improving mental health. In doing so, services provided by Academic Development Specialists can be proactive rather than reactive. This discord server can also be used to hold information about resources, contacts, events, and consultation appointments. Much like a class would have a server, students can sign up to be a part of the server created by Academic Development Specialists. This would allow students to see and post on the server chat rooms, and also interact with other students in the group or even Academic Development Specialists like Susan Basudde.

5. The System - System Characteristics & Boundaries

Characteristics of the System

Characteristics of the System	
Environment	University of Calgary
Boundary	Haskayne School of Business
Holistic Focus on the Complete System	The system will focus on creating a healthier community environment for students by creating a platform where students can connect with their peers.
Interrelating Components	The system will contain class databases which consist of the list of students enrolled in those classes alongside chat rooms where students can make public and private messages to their peers.
Hierarchical	This would be a hierarchical system as staff and its department would be responsible for monitoring the contents posted on the chat rooms.
Goal or Purpose (Teleological)	The goal of the system is to increase the interactions between students within classes with the aim of creating an enhanced community feel. .
Self-Governing	The system will be governed by the volunteers and the IT department where they would be responsible for monitoring the contents on Discord. Bots would be put in place to identify and block messages that include profanity or engage in academic misconduct. It will also be self-governing as students will have the opportunity to flag inappropriate messages.
Feedback	Suggestions from the student body will be implemented by the IT team and staff.

Equifinality	Multiple ways of achieving community engagement which would come in the form of chat rooms that are both public and private. Students will have the opportunity to ask general questions to the class by the use of discord groups. They can also use the system to develop a direct relationship with their peers through the use of private groups and private messages.
Entropy of the System	The system will need constant monitoring to maintain the appropriateness of the Discord groups.

System Boundaries

Who will supply, use, or remove information from the system?

The system will be used by the student body and the faculty members alike. Students can engage with each other via chat rooms. Faculty members and the staff will be given access to remove or block content as a way to moderate content.

Who will operate the system?

The system will be operated with the help of existing system that of D2L and existing 3rd party app that of Discord.

Who will perform any system maintenance?

The IT department and 3rd party providers would be responsible for maintaining the system. Self-governing bots will also be put in place to monitor contents on the Discord groups.

Where will the system be used?

The system can be used through the computers from the library or through student's personal devices such as a phone or a computer. Anyone with a valid university of Calgary ID and the private Discord link can use the system.

Where does the system get its information?

The system will get its information from the various existing databases that the University of Calgary maintains. Resources from these databases will be integrated within Discord.

What other external systems will interact with the system?

The system will interact with various databases within the system environment.

6. System Dimensions - Constraints & Feasibility

System Constraints

Operations

Once the correct Discord groups have been created, the users will be required to register to the group, once registered they will be able to access and interact with the groups immediately.

Systems

The system will be bound by the rules and regulations that the University already follows when using third party applications. Thanks to the extreme amount of control the group administrators have, Discord provides a safe environment for users to interact

Equipment Budget

As mentioned by the project sponsor Susan, there is no budget constraint. But considering we are utilizing a third-party system; the costs should be minimal.

Personnel staffing

Constraints regarding the staffing of this project will be a result of the size of the IT department, the Professor and their chosen TA in charge of the class for the Discord group as well as the availability of students within the volunteer programs.

Technology Mandate

We will be utilizing a third-party system called Discord, as a result the University will follow the same mandates that as Discord. Because it is an institution of higher education and must adhere to a stricter set of rules, there will be additional mandates that will have to be acknowledged.

Feasibility Analysis - TELOS

Technical

There is technical expertise within the University of Calgary in terms of staff as well as students will provide the resources necessary to design, build, monitor and repair this system. The Haskayne School of Business has the necessary technological means to develop a solution for this problem.

Economic

When it comes to building a community and supporting mental health, any costs associated with this project will be outweighed by the benefits. Having a system in place such as this could provide an overall better experience amongst students, which in turn will help us achieve our goal of creating a sense of community. Achieving this goal will provide, (through word of mouth, online forums and ratings) a better vision of the University of Calgary, resulting in an increase of University applications.

Legal & Ethical

The system will be utilizing information that will be provided by the University to its users. All access to the groups and community groups will be provided by the University, ensuring only those attending the school can have access. The system will have security protocols as well as a monitoring system in place to ensure the community guidelines are followed and will promptly delete inappropriate and unacceptable posts.

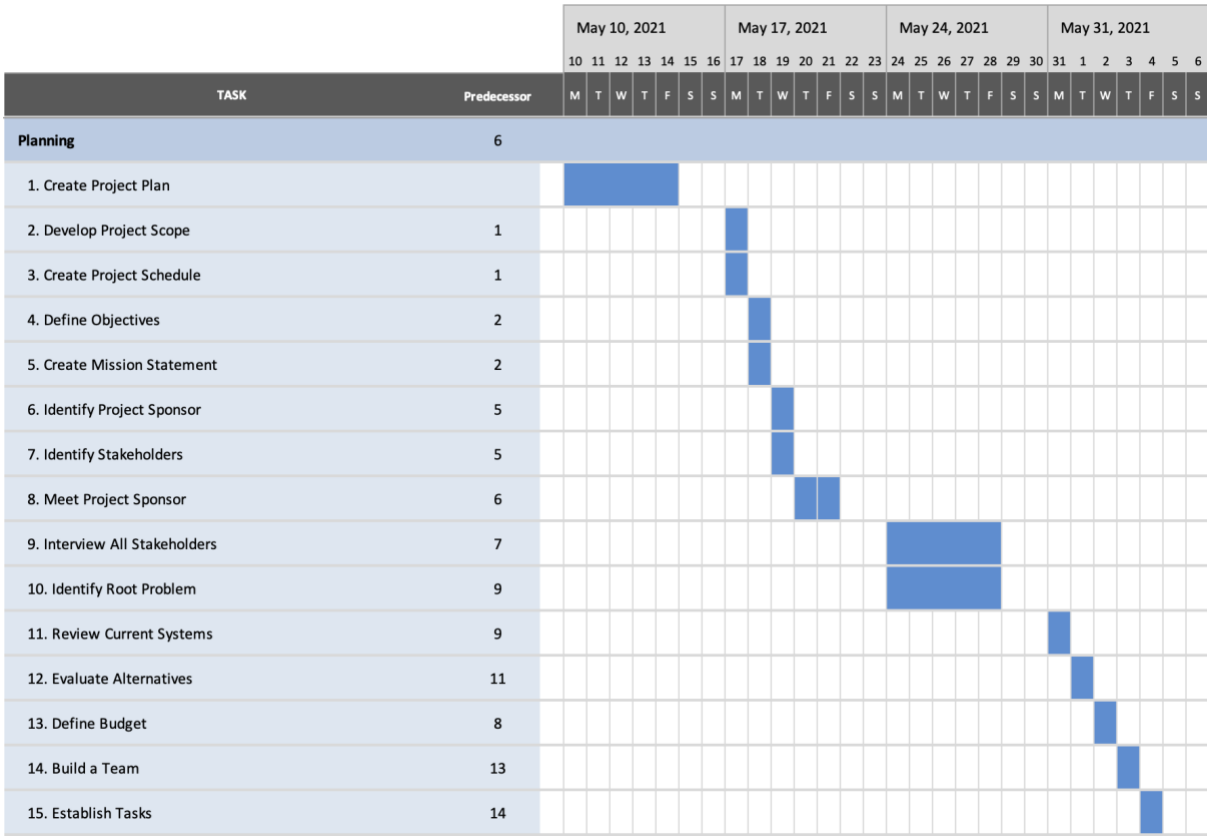
Operational

To be operationally feasible, there must be manager and user support. The project is operationally feasible since there is user involvement in the planning stages. By doing this project/assignment we are providing our input on how the end system can be feasible.

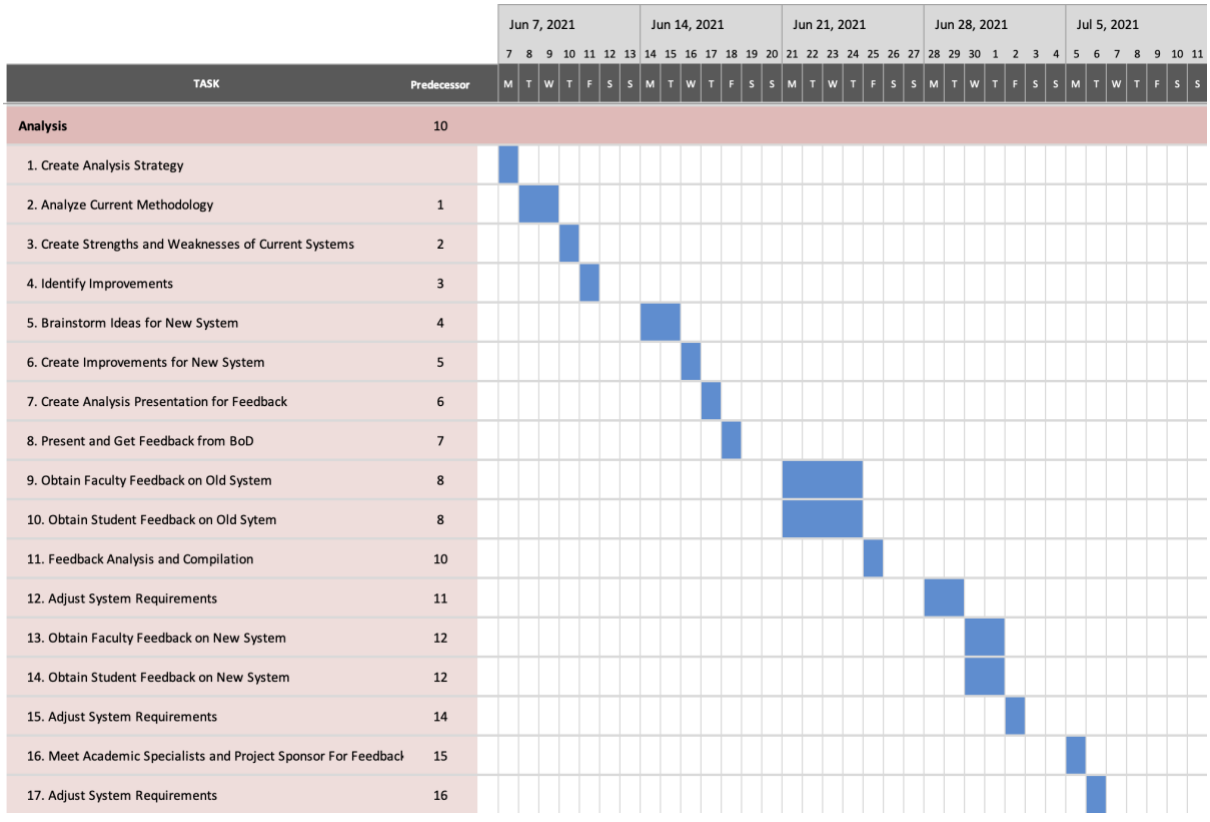
Schedule

As we are going to be using a current system and modifying it, the time frame should not be extensive. Theoretically, this system should enter a testing period during the summertime and become fully operational by the start of the Fall 2021 semester.

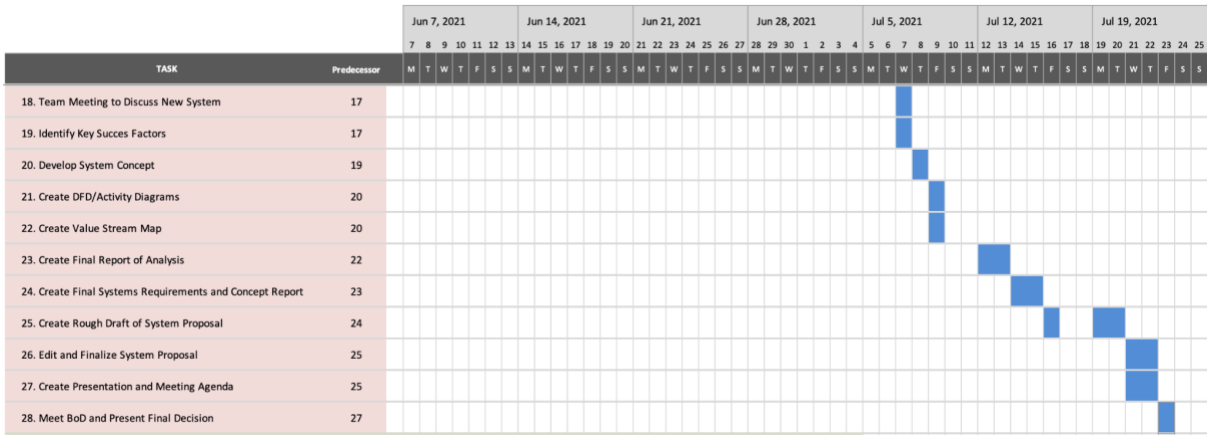
7. Project Schedule - GANTT

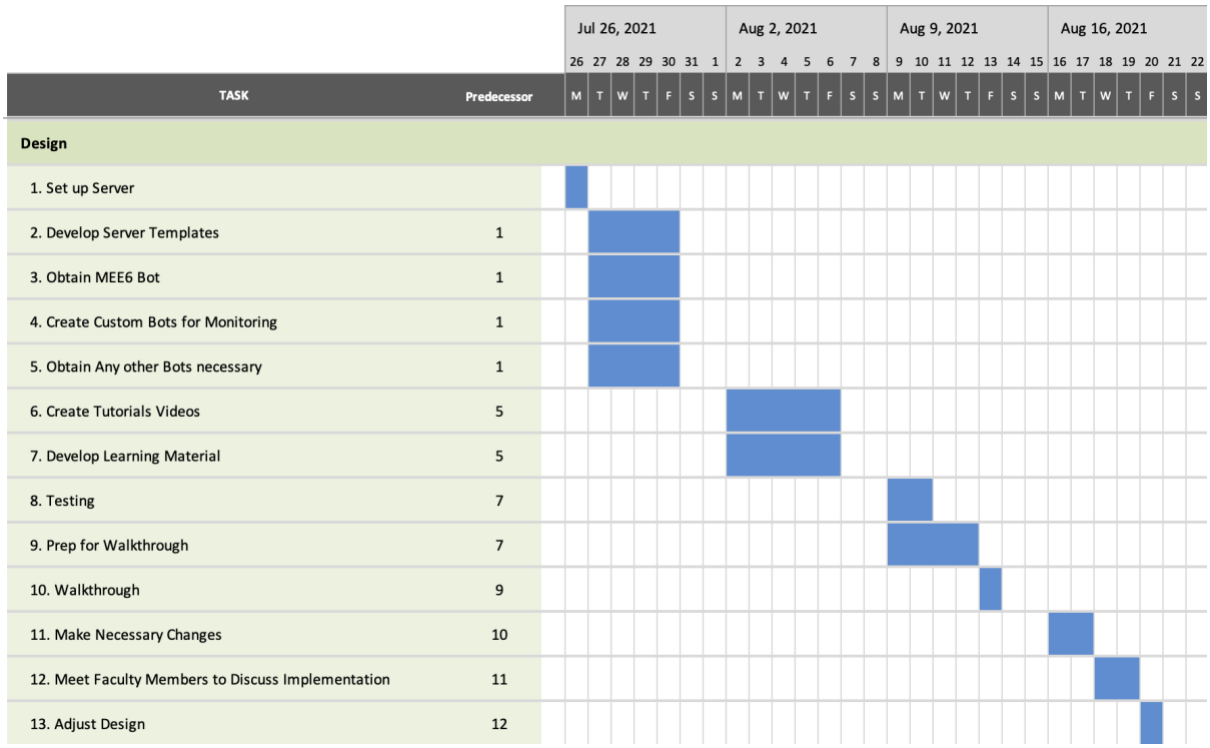


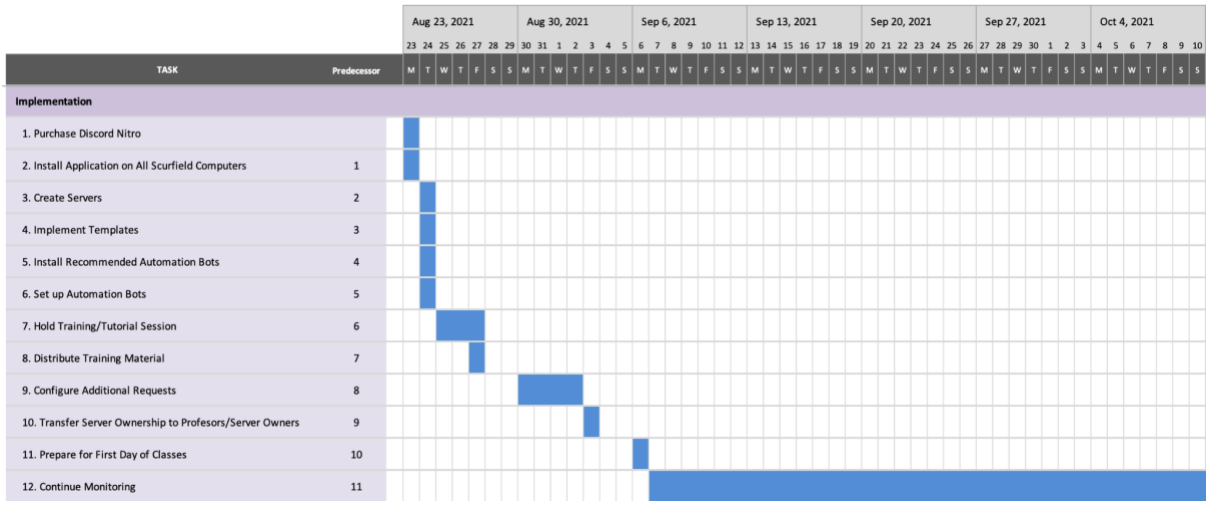
TASK	Predecessor
Planning	6
1. Create Project Plan	
2. Develop Project Scope	1
3. Create Project Schedule	1
4. Define Objectives	2
5. Create Mission Statement	2
6. Identify Project Sponsor	5
7. Identify Stakeholders	5
8. Meet Project Sponsor	6
9. Interview All Stakeholders	7
10. Identify Root Problem	9
11. Review Current Systems	9
12. Evaluate Alternatives	11
13. Define Budget	8
14. Build a Team	13
15. Establish Tasks	14



TASK	Predecessor
Analysis	10
1. Create Analysis Strategy	
2. Analyze Current Methodology	1
3. Create Strengths and Weaknesses of Current Systems	2
4. Identify Improvements	3
5. Brainstorm Ideas for New System	4
6. Create Improvements for New System	5
7. Create Analysis Presentation for Feedback	6
8. Present and Get Feedback from BoD	7
9. Obtain Faculty Feedback on Old System	8
10. Obtain Student Feedback on Old Sytem	8
11. Feedback Analysis and Compilation	10
12. Adjust System Requirements	11
13. Obtain Faculty Feedback on New System	12
14. Obtain Student Feedback on New System	12
15. Adjust System Requirements	14
16. Meet Academic Specialists and Project Sponsor For Feedback	15
17. Adjust System Requirements	16


Jun 7, 2021
Jun 14, 2021
Jun 21, 2021
Jun 28, 2021
Jul 5, 2021
Jul 12, 2021
Jul 19, 2021
TASK
Predecessor
18. Team Meeting to Discuss New System 17
19. Identify Key Succes Factors 17
20. Develop System Concept 19
21. Create DFD/Activity Diagrams 20
22. Create Value Stream Map 20
23. Create Final Report of Analysis 22
24. Create Final Systems Requirements and Concept Report 23
25. Create Rough Draft of System Proposal 24
26. Edit and Finalize System Proposal 25
27. Create Presentation and Meeting Agenda 25
28. Meet BoD and Present Final Decision 27


Jul 26, 2021
Aug 2, 2021
Aug 9, 2021
Aug 16, 2021
TASK
Predecessor
Design
1. Set up Server
2. Develop Server Templates 1
3. Obtain MEE6 Bot 1
4. Create Custom Bots for Monitoring 1
5. Obtain Any other Bots necessary 1
6. Create Tutorials Videos 5
7. Develop Learning Material 5
8. Testing 7
9. Prep for Walkthrough 7
10. Walkthrough 9
11. Make Necessary Changes 10
12. Meet Faculty Members to Discuss Implementation 11
13. Adjust Design 12


Aug 23, 2021
Aug 30, 2021
Sep 6, 2021
Sep 13, 2021
Sep 20, 2021
Sep 27, 2021
Oct 4, 2021
TASK
Predecessor
Implementation
1. Purchase Discord Nitro
2. Install Application on All Scurfield Computers 1
3. Create Servers 2
4. Implement Templates 3
5. Install Recommended Automation Bots 4
6. Set up Automation Bots 5
7. Hold Training/Tutorial Session 6
8. Distribute Training Material 7
9. Configure Additional Requests 8
10. Transfer Server Ownership to Profesors/Server Owners 9
11. Prepare for First Day of Classes 10
12. Continue Monitoring 11

Analysis

1. **Current System Analysis**
   - 1.1. D2L
   - 1.2. 3rd Party Applications
   - 1.3. Solution

2. **Current Use Case Diagrams**

3. **Current System Use Case Descriptions**

4. **Requirements**
   - 4.1. Overview
   - 4.2. In Depth - Functional Requirements
   - 4.3. In Depth - Non-Functional Requirements

5. **Alternatives**
   - **5.1. Alternative 1** - Implementing class discords.
     - 5.1.1. Description
     - 5.1.2. Feasibility Analysis - TELOS
   - **5.2. Alternative 2** - Mental Health Guidance Platform.
     - 5.2.1. Description
     - 5.2.2. Feasibility Analysis - TELOS
   - **5.3. Alternative 3** - The unified system
     - 5.3.1. Description
     - 5.3.2. Feasibility Analysis - TELOS

6. **Cost-Benefit Analysis**
   - 6.1. Cost-Benefit Ratio Table

7. **Alternative Matrix**

8. **Decision**

9. **Risk Management Matrix**
   - 9.1. Risk Management Table

10. **Key Performance Metrics**
    - 10.1. Success Matrix
    - 10.2. Data Collection
    - 10.3. Form

1. Current Systems Analysis - D2L & 3rd Party Applications

Currently the University of Calgary does not have a unified space where students can see their classes, have class/group discussions, and have their own private conversations with peers. These spaces exist, but because they are all in separate platforms, it does not create a simplified process

D2L

The University uses D2L to communicate course material, grades, news, resources, calendars, class lists, contacts, discussions, etc. The only conversational aspect to the platform is the chat/discussion's function. However, the discussion feature must be set up by professors. Secondly, the chat feature is similar to the discussion board, but students can post chats on there. The downside to this is that it is public facing, and you cannot have private conversations with individual people or your group members.

D2L also provides a class list function where you can see contact details of your peers. However, the only way to start a conversation would be to send an email via outlook. For these reasons students resort to 3rd party applications to communicate amongst each other.

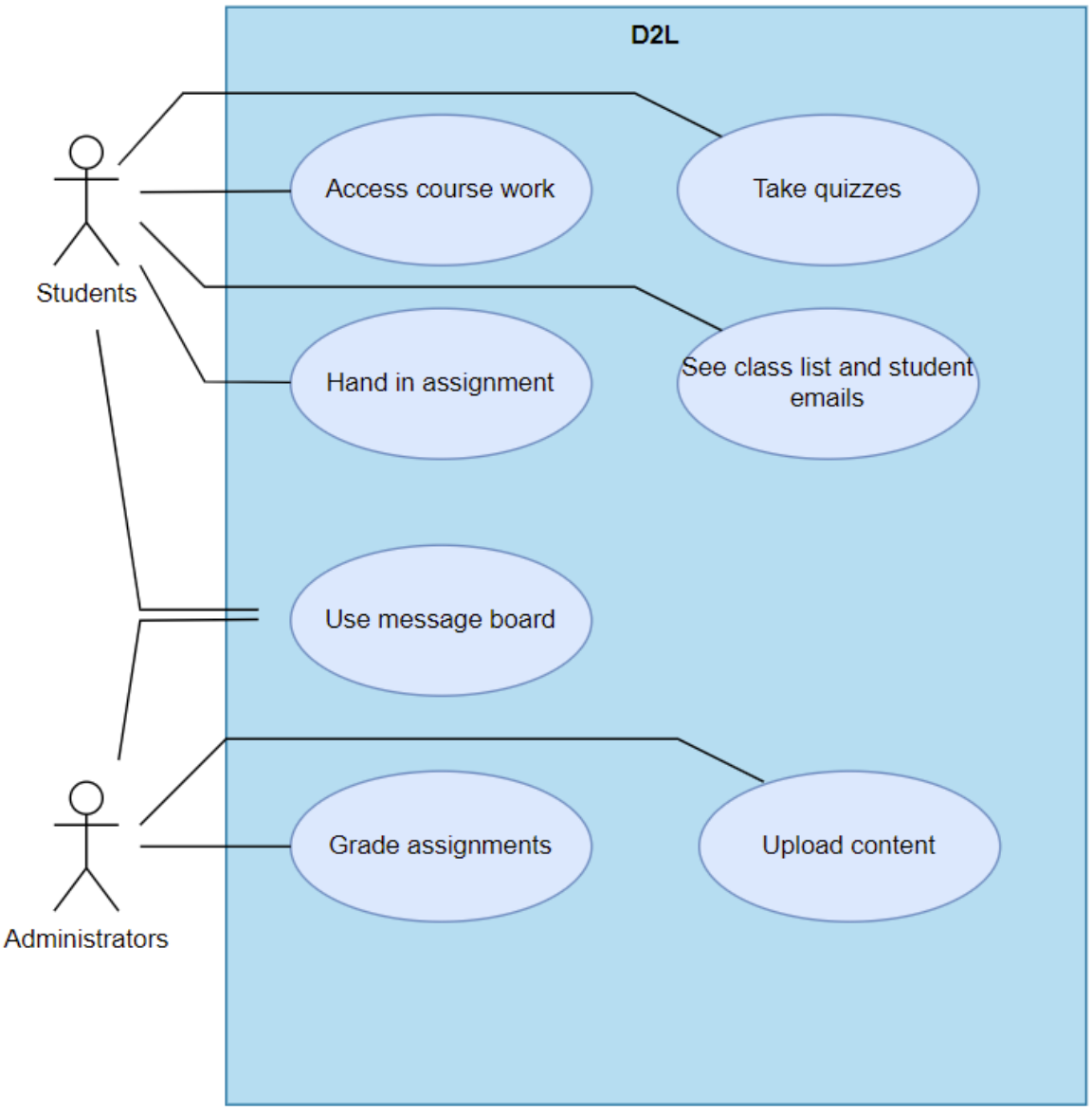
3rd Party Applications for Communication

Although these applications have great functionality, frustrations derive from the lack of consistency amongst student preferences. For example, one student in a group may not have Facebook therefore does not want to sign up for Messenger. They propose that the group starts an iMessage group chat instead. Another student in the group uses Android and

cannot be added to the iMessage group chat. The rest of the group must download WhatsApp in order to have a cross compatible platform.

Additionally, most if not all classes at the Haskayne School of Business require some form of group work. Full-Time students average roughly 4 groups a semester and, in many cases, will have all 4 groups on different platforms.

2. Current Use Case Diagrams



3. Current System Use Case Descriptions

Name	Access course work
Participating actor	Student
Precondition	Enrolled in course
Flow of events	1. Student selects the course they are enrolled in 2. Student can view and interact with various content that has been uploaded
Postcondition	The system remembers what content you have looked at
Alternative	none

Name	Take quizzes
Participating actor	Student
Precondition	Quiz has been made available
Flow of events	1. Student select quiz 2. Student condoms the start of the quiz 3. Student has an allotted amount of time to complete quiz 4. Student submits a completed quiz

Postcondition	The quiz is auto graded or sent to administrator for further marking
Alternative	4. Allotted time runs out and the quiz is closed and submitted, regardless of completeness.

Name	Hand in coursework
Participating actor	Student
Precondition	Dropbox open
Flow of events	1. Students submit their work through the provided drop box
Postcondition	The work is handled by the administrators.
Alternative	none

Name	See class list and student emails
Participating actor	Student
Precondition	Enrolled in course
Flow of events	1. Students can view each other's 2. They can reach out via email to group members

Postcondition	none
Alternative	none

Name	Use message board
Participating actor	Students and administrators
Precondition	Enrolled in course
Flow of events	1. Create a post thread 2. Reply to original post 3. Reply to replies
Postcondition	The post is saved and can be seen by later students.
Alternative	none

Name	Grade assignments
Participating actor	administration
Precondition	Students have submitted work
Flow of events	1. Access work 2. Grade work 3. Submit grades

Postcondition	Students can see their graded assignments.
Alternative	none

Name	Upload content
Participating actor	Administration
Precondition	Enrolled in course
Flow of events	1. Upload's content 2. Students can see and interact with content
Postcondition	The system remembers what content you have looked at.
Alternative	2. Content is time gated to be released at a certain time and date.

4. Requirements - Functional and Non-Functional Requirement

Overview

Functional Requirements:	**Non-Functional Requirements:**
System is controlled and monitored by individuals chosen by the Professor or department head	Operational: · System should be functional on all web browsers and devices. · Customizable interface and profile for users.
System allows for input from users	Performance: · System is easily updatable and manageable. · Messages are delivered within 3 seconds · System is available for use 24 hours a day, 365 days a year.
System allows for group messaging and collaboration	Security: · The IT department has sole access to sensitive

	information for privacy and security concerns. · Data integrity remains.
System should collect and track user data	Cultural and Political: · System complies with all University of Calgary standards and ethics.
System sends notifications.	

In Depth - Functional Requirements

This system has five Functional Requirements that the system must meet. First is that the system must be controlled and monitored by individuals chosen by the Professor or department head. This is to ensure proper control of the system. Second, the system must allow for the users to provide input on system performance, this will provide feedback and allow for issues to be rapidly resolved. Third, the system needs to allow for group messaging and collaboration features, this is crucial in creating a sense of community. Fourth, the system must be able to collect and track user data to resolve issues relating to academic misconduct and bullying. The final requirement is the system being able to send notifications to the users, this will involve new messages, updates and features.

In Depth - Non-Functional Requirements

The non-functional requirements are not mandatory but will be beneficial if they can be incorporated into the system.

Operational:

The system should function on all web browsers (Safari, Chrome, etc..), devices (Desktop, Tablet, Mobile…) and operating platforms (IOS, Windows…). The user interface and profile should be customizable.

Performance:

The system should be easy to update and manage, to improve efficiency. Messages should be delivered within 3 seconds to promote the feeling of live communication. The system should be accessible at any time.

Security:

The IT department at Haskayne should have sole access to sensitive information regarding the system, to prevent security risks. Data integrity must be maintained to protect the system while increasing its stability and performance.

Cultural and Political:

The system should comply with all University of Calgary standards and follow its code of conduct and ethics, to ensure the safety and protection of all users.

5. Alternatives

Alternative 1 - Class discord groups.

Description

This alternative will give students a platform where they can communicate with their classmates through the use of Discord. Every class will have their own Discord groups and students can join these groups to keep in touch with their class. University of Calgary students have very low peer-to-peer communication which results in a low sense of community. This solution will directly address that problem in a highly cost-effective manner. Discord is a popular app that students already use, hence the transition to these groups will be easy. Students can join their respective discord group through the link that they will find on D2L. Students will have an increase of peer-to-peer communication and will ideally experience a feeling of a high sense of community through the use of this alternative.

TELOS Feasibility

Technical

This plan requires low technical expertise. Discord groups will have bots that can be very easily made to monitor the group chat and carry out certain functions. The University of Calgary has the technical expertise to undertake this project.

Economic

This solution offers a highly cost-effective solution as it is making use of two platforms that already exist. Students can find the link to their Discord groups through D2L The costs associated with this project will be in the form of operating expenses for moderators within the Discord and for the creation of simple bots programmed by IT personnel's.

Legal & Ethical

The system will be utilizing information that is already existing in various University of Calgary databases, as this system is an addition to current systems in place, and users have

already signed the terms and conditions, no new legal documents will be required. The system will have security protocols as well as a monitoring system in place to ensure the community guidelines are followed and will promptly delete inappropriate and unacceptable posts.

Operational

The project is operationally feasible since there is user involvement in the planning stages. By doing this project we are providing our input on how the end system can be feasible.

Schedule

As we are going to be using the current system and modifying it only slightly, the time frame should be short. Theoretically, this system should be fully operational by the start of the Summer 2021 semester.

Alternative 2 - Mental Health Guidance Platform

Description

This system aims to improve the mental health of students attending university through better community engagement and access to mental health resources. The system will combine 3 aspects to improve the mental health of the students which would include a message board, an event page, and better access to mental health resources. The message board will be public where students can engage with each other under various threads. The event page will show information about upcoming events and students will have the ability to RSVP to events. These two methods will be used to improve mental health with a better community environment. Lastly, the system will consist of resources to mental health within the system environment where students can also sign up to see a therapist within the university.

TELOS Feasibility

Technical

Technical expertise will be outsourced to design, build, monitor and repair this system.

Economic

This alternative will be rather expensive to build. The costs of this alternative will be associated with the creation of a new system that combines existing resources available within the university such as databases. The system will provide a new platform where all these existing resources will be integrated. Having such a system in place could provide an overall better experience amongst students with more event participation and a better overall mental health due to more access to resources.

Legal & Ethical

Ensuring that those who are involved in counselling type services are equipped with the proper degree, skills, and training to do so appropriately. Client confidentiality laws as well as a secure system will provide privacy for those that use this system.

The system will be utilizing information that is already existing in various University of Calgary databases. The system will have security protocols as well as a monitoring system in place to ensure the community guidelines are followed and will promptly delete inappropriate and unacceptable posts.

Operational

To be operationally feasible, there must be manager and user support. The project is operationally feasible since there is user involvement in the planning stages. By doing this project we are providing our input on how the end system can be feasible.

Schedule

As we are going to be using the current system and modifying it, the time frame should not be extensive. Theoretically, this system should enter a testing period during the summertime and become fully operational by December of 2021.

Alternative 3 - The Unified platform

Description

This system will focus on improving mental health among students by solely focusing on improving the community engagement of the students. This directly addresses the primary problem of University of Calgary's lack of peer-to-peer communication. The primary focus of this system will be improving engagement through messaging. Every class will have its own group where students can communicate with each other. Every class will have both a private and public messaging group. Public messaging would take the form of discussion boards. Students can also privately send messages to their class comparable to apps like WhatsApp, Messenger, and Discord. Ideally, this will help improve the sense of community within classrooms. Furthermore, students will have the option to message individual classmates personally which will in practice help develop deeper friendships within the community.

TELOS Feasibility

Technical

Technical expertise will be outsourced to design, build, monitor and repair this system.

Economic

This system will be more expensive than the other alternatives as it will focus on creating a new system that has fast messaging capabilities. The costs relating to this system will incur on creating this platform. Other than that, the system will make use of existing databases

within the university. Having a system in place such as this could greatly improve community engagement and a sense of belonging for the students.

Legal & Ethical

The system will be utilizing information that is already existing in various University of Calgary databases. The system will have security protocols as well as a monitoring system in place to ensure the community guidelines are followed and will promptly delete inappropriate and unacceptable posts. Students and TA's will also self-regulate the private group messages to flag inappropriate messages in the private group chats.

Operational

The project will be beta tested during the testing phase in 2 or 3 classes during an entire semester. Feedback from the students will be taken to evaluate the key performance of the system to ensure efficacy.

Schedule

A new system will be built because of which this alternative will take a longer time than the other alternatives. The planning and analysis phase will take 2 months each. The system should ideally take 5 months to build. And the system will then be tested for an entire semester to ensure efficacy. The system should be fully functional during the winter semester of 2022.

6. Cost-Benefit Analysis

Cost-Benefit Ratio Table

Alternative 1 - Class Discord Groups	**Alternative 2 - Mental Health Guidance Platform**	**Alternative 3 - The Unified System**
Total Costs = ~$213	Total Costs = ~$70,000	Total Costs = ~$90,000
Total Benefits = $1,000	Total Benefits = $105,000	Total Benefits = $165,000
Cost-Benefit Ratio = 4.69	**Cost-Benefit Ratio = 1.5**	**Cost-Benefit Ratio = 1.83**

Alternative 1 - Class Discord Groups

It is estimated that using discord would cost roughly $213 for the first year and $99 for the years to follow. This is a substantially lower cost than both alternatives #1 and #2. On top of being a low-cost alternative, it would also be the fastest to design and implement since no new platform will need to be developed. This alternative also has the highest likelihood of adoption, as many students already use the platform for either school or personal use. Use will also be promoted by faculty since course content will be available on the platform.

Alternative 2 - Mental Health Guidance Platform

Based on our research it would cost roughly $61,000 for developers to create this platform. Since it will be a brand-new platform, implemented by the University of Calgary, it will need to be developed from scratch making this option significantly more costly. Additionally, creating a new platform puts forth the risk that it will be rejected by users, resulting in a costly project that will not be used. This option is also very selective of who it will benefit, since it will only be used by students who want to participate in curricular

activities, communicate with those outside of a classroom setting, and require the assistance of academic specialists. Because students at the University of Calgary are used to lifestyles associated with a commuter college, they will not be inclined to explore the benefits of this app/platform.

Alternative 3 - The Unified System

This alternative based on research could cost anywhere from $61,000-$120,000 depending on the quality we want the final product to be. We believe this alternative presents an effective solution that targets our root problem. It also has a high likelihood of adoption since professors can promote the use of these systems by moving course content onto the platform. Because students will need to access the platform regardless for class content, they will be more inclined to explore the other capabilities of the platform. However, this alternative is extremely expensive, and will take far too long to design and implement.

7. Alternative Matrix

Criteria is ranked on a scale of 1 to 5

1 = Worst 5 = Best

Alternative Matrix			
Criteria	**Alternative 1** **Class Discord Groups**	**Alternative 2** **Mental Health Guidance Platform**	**Alternative 3** **The Unified System**
Promotes	5	3	4

Communication			
Promotes Mental Health	5	5	5
Ensures students have access to resources	4	5	4
Event Visibility	4	5	4
Cost	5	2	1
Target Audience - Biggest student outreach	5	2	5
Total	**28**	**22**	**23**

8. Decision

The main goal of our project is dedicated to addressing the lack of community and peer-to-peer communication which contributes negatively to student's mental health. After careful analysis of our alternatives our team has decided that alternative 1: The class discord groups address that problem in the best way. After considering the different ways to tackle the issue of mental health we concluded that the main reason behind deteriorating mental health is a lack of belonging that students feel towards the university. Hence, we decided to focus on the root cause of the problem. Every class will have its dedicated group where students can communicate with each other, which will greatly develop a sense of belonging

of the students. Furthermore, students can message each other individually through the use of discord and therefore foster more meaningful connections.

When comparing the alternatives in the alternative matrix, we found that all of our alternatives addressed the issue of mental health equally well. But after careful consideration we decided to pursue the implementation of having class discords throughout the university. The mental health guidance platform focuses on providing students with better resources for mental health concerns, although a noble cause, we wanted to focus on the root cause of the problem rather than its symptoms. The Unified system has a proactive solution than a reactive one, much like having class discord groups. But after careful consideration, we came to the conclusion of pivoting from the unified platform. This is because implementing the unified platform would require the university to stop the use of D2L as a whole. This meant the transition towards the unified system would be a difficult one, and students have to get used to a new UI. Requiring students to join the discord groups for their individual classes addresses the same problems as the unified system. Furthermore, it does not require students to learn a new UI, as both D2L and Discord are used at scale by the students. Another reason for choosing this is because it requires very little funding from the board to implement this project throughout the University. This alternative provides a simple solution to a very common and a rather complex problem. We strongly feel that improving the sense of community among students will improve mental health.

The University of Calgary is known as a commuter campus where the primary focus of the university is on teaching and not providing students with a traditional college environment where students feel that they miss out on the “University experience”. We

believe that having class discord groups can greatly impact this and provide students with an overall better experience which would ideally result in better mental health among students.

9. Risk Management Matrix

The below table contains six risks that could arise from the system, along with mitigation and contingency plans as well as the probability of each risk occurring.

Risks:	**Mitigation:**	**Contingency:**	**Risk Probability:**
Students post inappropriate messages	System will have certain keywords (swear words, etc..) that will be banned and unable to be posted. System will have bots that monitor the groups and will delete and report any messages that do not follow the guidelines set in place by the University.	A report feature will be available to report inappropriate messages that may have gotten by the original message screening.	45%

Bullying	System is public and messages are allowed to be reported.	Students reported for bullying will be temporarily banned from posting and consequences will be determined by the Dean.	10%
Accounts Hacks	Students can report if their account has been compromised and the server administration can disable their ability to post.	Students will be required to create a new account if theirs was compromised. They will have to register their new account with the administration to be allowed access.	15%
Cheating	System is public and constantly monitored. This falls under academic misconduct and will be dealt with accordingly, which	Class servers can be disabled during testing periods.	10%

	should reduce the incentive to cheat.		
Students not engaging with the system.	Send out emails informing the students about the new programs.	Encourage professors and the school clubs to communicate through the system to force more interaction.	30%
Creation of Fake Profiles	Ensure that the system uses the same information that is posted on D2L, this will prevent new profiles from being created.	Having a strong password and dual-authentication system will further help prevent this risk.	5%
Users Spam messaging system.	Limit the amount of messages sent per minute and repetitive	Messages can be reported as spam and will be automatically deleted by the bots.	15%

	posts, this will be enforced by the bots.	Users posting spam will be temporarily banned from the messaging system.	

10. Key Performance Metrics

Success Matrix

Below is a table that describes a few issues within Haskayne, and a proposed solution. We identified key metrics that we will use to measure the success of the system as well as our main target.

Issue:	Resolution:	Metric:	Target:
Lack of community and peer to peer relationships	Promote communication with others that share similar interests through a Discord server.	Number of users messaging on the server.	Those who are unlikely to be the first to reach out and commence a conversation.
Student unaware of activities and events happening on campus	Through the main Haskayne server, groups will have the ability to promote	Event attendance, compared against those that are in the group, and those	Those who are interested in expanding their network but are unsure how too.

	and advertise upcoming events.	that responded "Going"	
Student's feelings of isolation have amplified due to Covid-19 pandemic.	Provide a safe space that will allow students to interact with others.	Number of groups and users on the system.	Those who are struggling with loneliness during the pandemic.

Data Collection

We will be collecting data from the system and using it to record and measure the user's engagement with our system in hopes to create a sense of community. We will be using this data to track user's activity and usage of the messaging system in our specifically created servers. We will be able to determine the number of messages sent by user's, amount of idle time spent on the system, average amount of messages sent per day, week, etc…, and the number of times individuals check the messaging system. This data will help us understand the effectiveness of our systems in regard to creating a sense of community.

Form

To measure the effectiveness of our new system as well as any possible improvements that can be implemented. A form similar to the USRI forms will be available through a shelf on D2L that can be accessed anytime. This form will allow users to provide feedback on what they enjoy about the system, what they do not enjoy or use on the system, what issues they have had in the past and what needs to be improved or added to provide a better experience.

What works well?	What doesn't work so well?	What needs to be improved?	What can be added that will improve your experience?
•{Click to enter text}	•{Click to enter text}	•{Click to enter text}	•{Click to enter text}

Design

1. **Design Options**
2. **Activity Diagram for Design Phase**
3. **Design Options Matrix**
4. **Design Decision**
5. **Cost**
6. **Project Duration**
7. **Availability**
8. **New System: Use Case Diagram**
9. **Business Process Diagram**
10. **Data Flow Diagrams**
    - 10.1. Context Level Diagram
    - 10.2. Level 0 Diagram
11. **Communication Diagram**
12. **Sequence Diagram**
13. **State Transition Diagram**
14. **Prototype Design**

1. Design Options

For the development of our platform, the UofC has two options to choose from. The first option would include having a basic version of discord and discord bots for all channels, including the Haskayne server. The second option would be to get a premium subscription for the campus wide channel, use the basic version for classes and events and get a premium version of the bot that would monitor the chatrooms. For both options, the setup would be done by student volunteers and TAs.

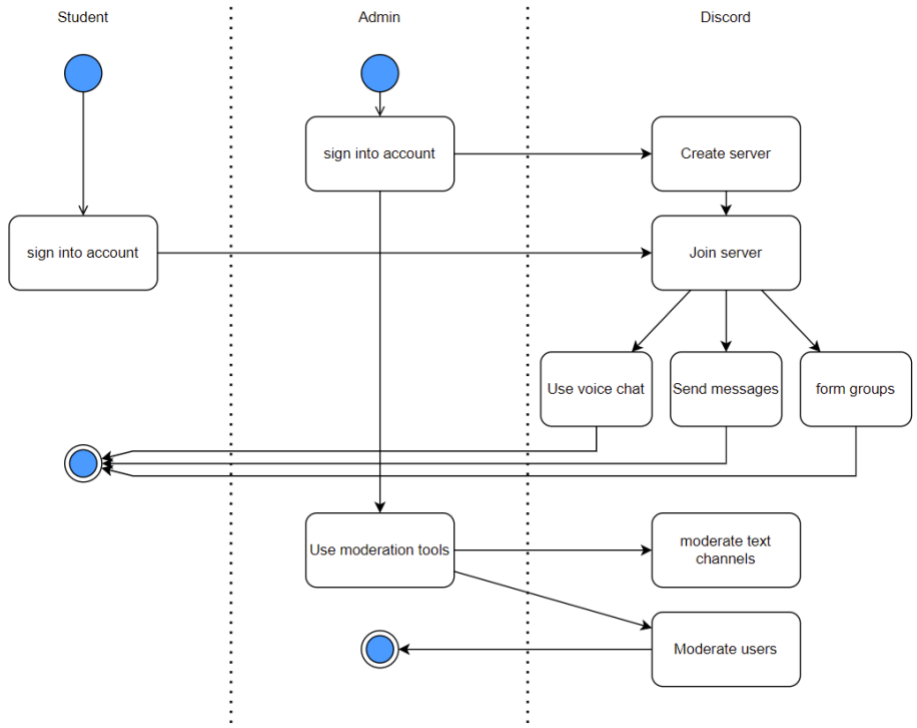
Design Option 1

The first option would include a basic version of discord for all servers, including the campus wide server. This would involve no costs at all, and you could use the *arcane bot* to help monitor messaging in the chats. Student volunteers and class TAs would help to set up the discord servers which would also involve no costs

Design Option 2

The second option would include using a premium server for the campus wide channel and for the rest of the servers use the basic version of discord. Discord Nitro, which is the premium version, would cost $99.99/year. This would allow the faculty to have optimized servers and to upload larger files and higher resolution videos. The bot to use for this would be the MEE6 bot which would be a one-time cost of $89.90 USD (~$113.04). This would allow for better security and more custom commands to monitor the Haskayne wide servers.

2. Activity Diagram for Design Phase



3. Design Options Matrix

Decision Options	Basic	Premium
Cost	Low	Medium
Availability	High	High
Duration(Time)	Low	Medium
Total	Low	Medium-High

Design Decision

After having examined the costs, benefits and risks of both options we decided to go with the second option. Buying a premium version of Discord for the Haskayne wide server will be more beneficial in terms of functionality and usability. It will allow the faculty to conduct a chatroom at a larger scale. For the individual classes, the basic version of Discord should be sufficient given the number of students per class. It will allow for basic usability to send any important class messages and be able to create student groups. The MEE6 bot will help to monitor the chatrooms. It will help with security of the chatrooms; the language being used and flag any controversial messaging. It also allows for the ability to create personalized commands and features, giving Haskayne the power to run these chat rooms in a safe and effective manner. In terms of setup for the servers, both campus wide and for professors, as well as the bots our plan is to ask students from clubs and classes to volunteer to help set this up. They will have the chance to gain some experience as well as potentially log this as volunteer hours. Professors would send over class lists and students would set up the servers accordingly the first year of implementing. They would also create tutorials for the setup so for coming years, professors, clubs and TA's can set their own servers up.

4. Cost

Figure #:

Cost Breakdown		
	1st year	**2nd year**
Discord Nitro	$99.99	$99.99
MEE6 Bot	$113.04	$0.00
Total	**$213.03**	**$99.99**

The total estimated cost for the first year came out to be ~$213.03. For every year this is to be used after, it would be $99.99. The MEE6 price is dependent on the conversion rate the bot is purchased so that would be subject to some change but otherwise this would be the approximate cost.

5. Project Duration - Overview of Project Schedule

We want to ensure that proper planning and analysis is done prior to the development stages of this project. For this reason, we would want to give at minimum 1 month for planning and 2 months for the analysis phase. It is estimated that a full-time developer team would require at maximum 1 month to design and create templates. Along with the creation of templates, learning material will need to be developed to educate new users on how to use the platform. Creation of this material will require 2 weeks. Two weeks prior to the start of classes applications will be installed on all Haskayne electronic devices. Once the application has been downloaded on devices, it is ready for use. At this point Faculty and Students can start setting up their servers. Following the start of classes, the team will continue to be available for support where needed and will monitor the system throughout the term.

Summary:

Planning = **4 Weeks**

Analysis = **7 Weeks**

Design = **4 Weeks**

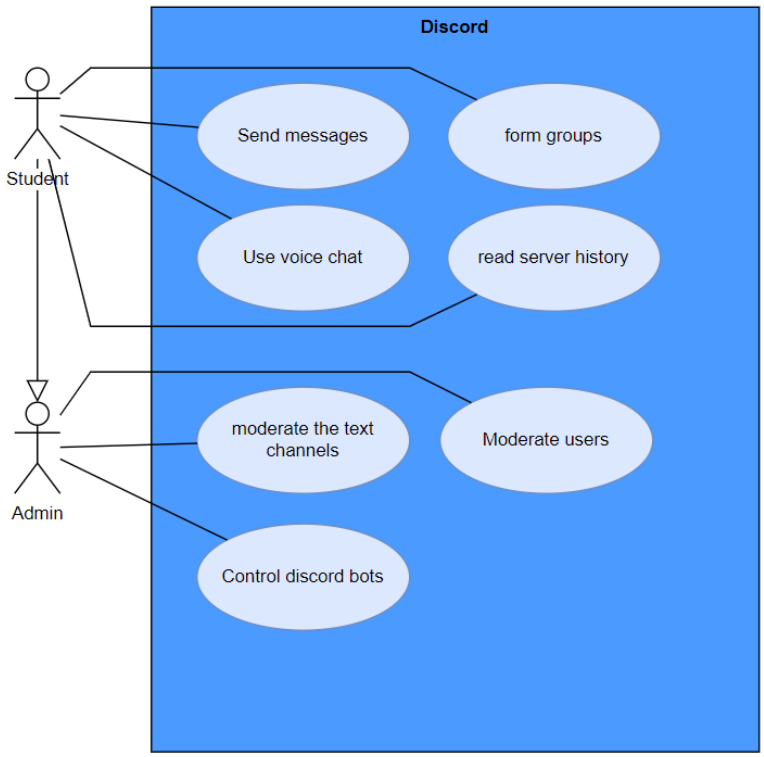
Implementation = **2 Weeks + 16 Weeks (monitoring/support throughout the semester)**

TOTAL = 17 Weeks + 16 Weeks Post Implementation for Monitoring

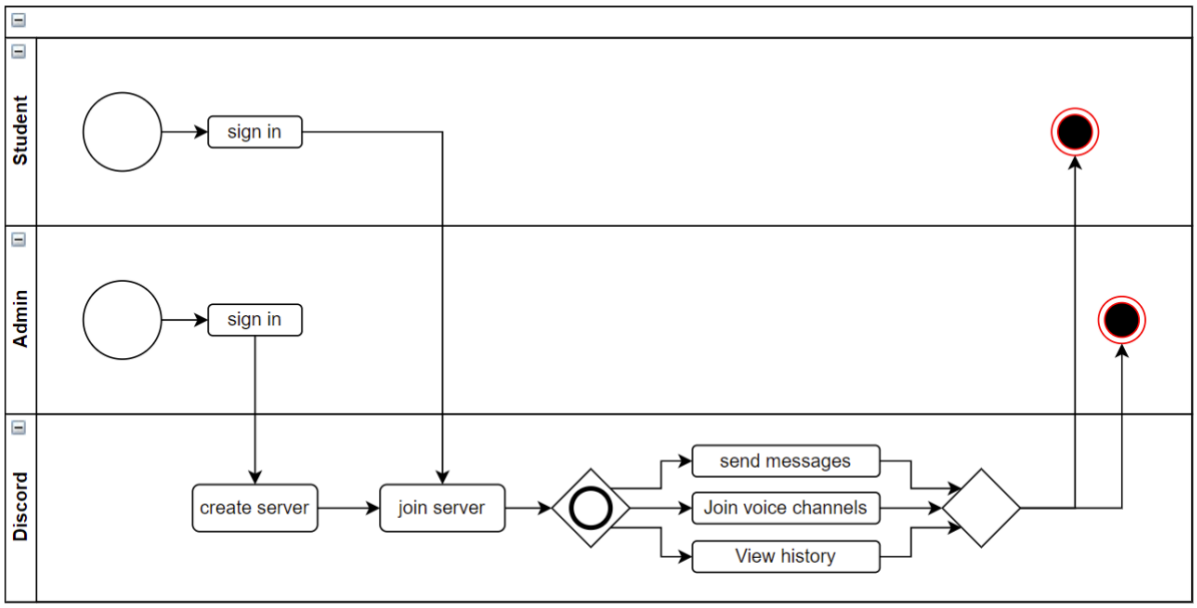
6. Availability

We would need a team available to create server templates that admins can use to host their own servers. For example, we would create a basic template for professors to present their course material. This team will also need to be available to answer questions, consult, and support. Additionally, once released, continual monitoring of the platform will need to be done. This is to ensure there is no form of academic misconduct, and users are being respectful to others. The monitoring of the chat would be dependent on the admins and students in these servers. However, monitoring of the system can also be assisted by bots which can be implemented for free, purchased, or coded by our team.

7. New System: Use Case Diagram

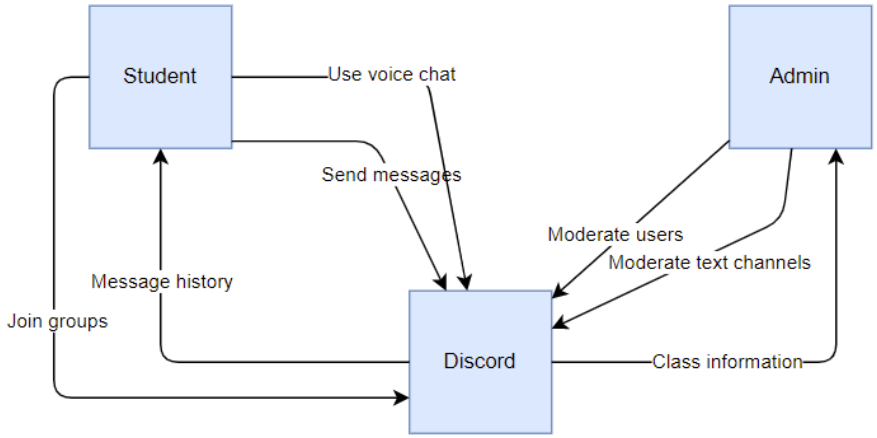


8. Business Process Diagram

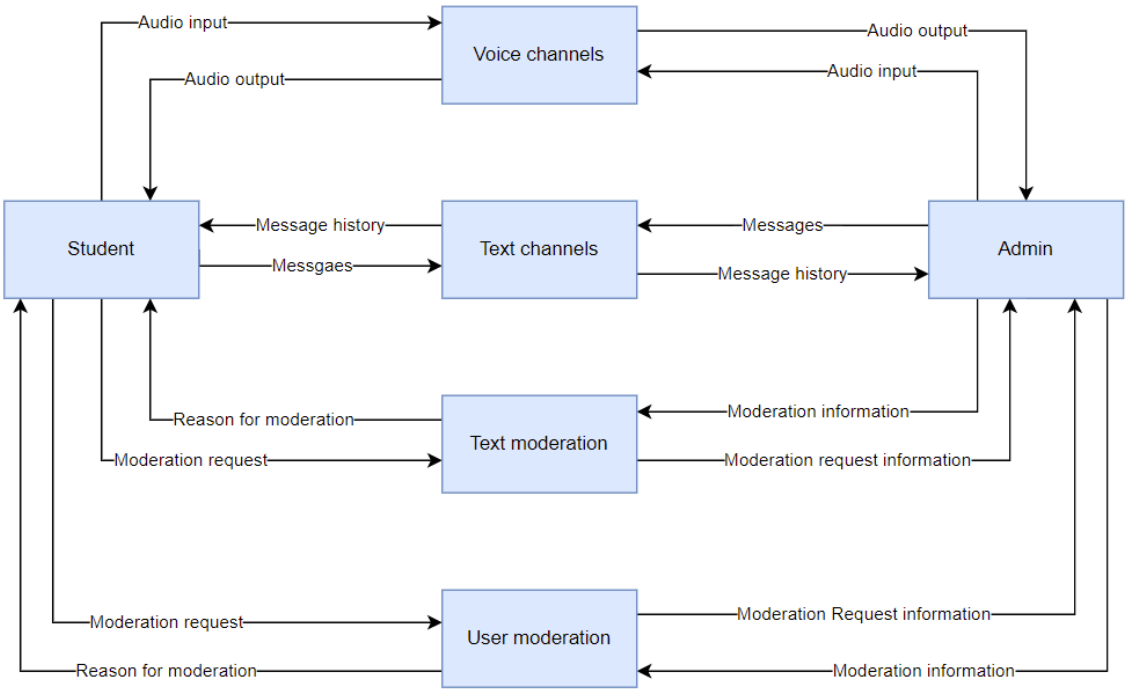


9. Data Flow Diagrams

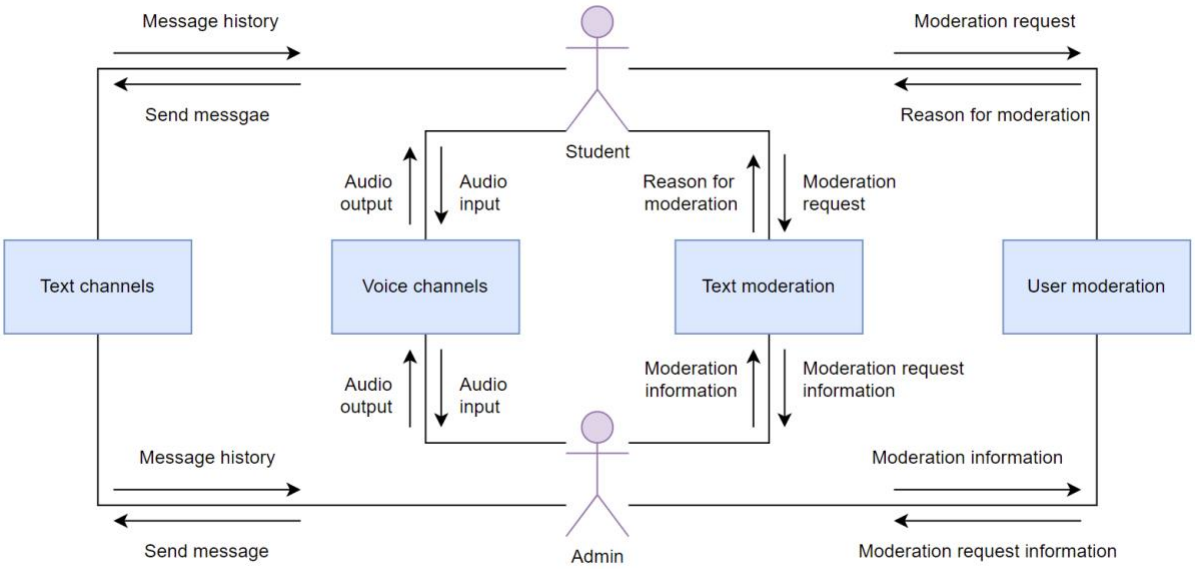
Context Level Diagram



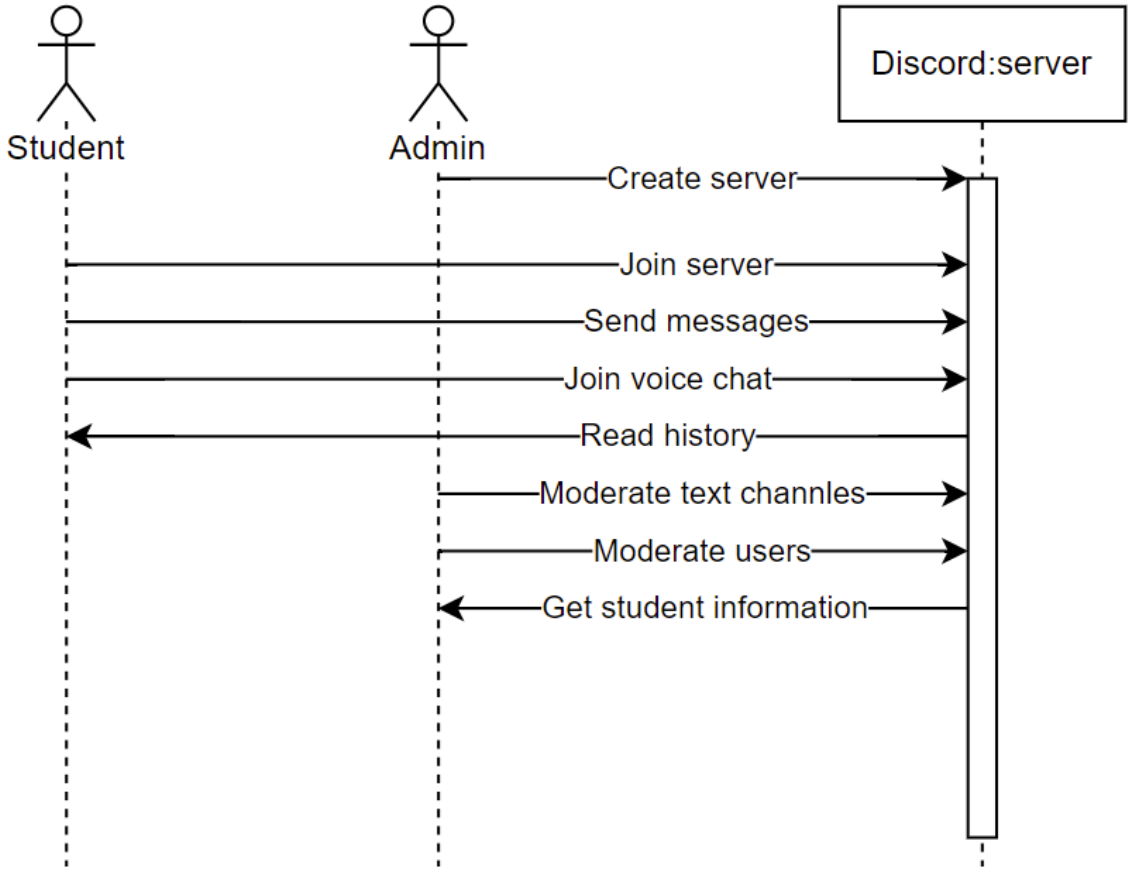
Level 0 Diagram



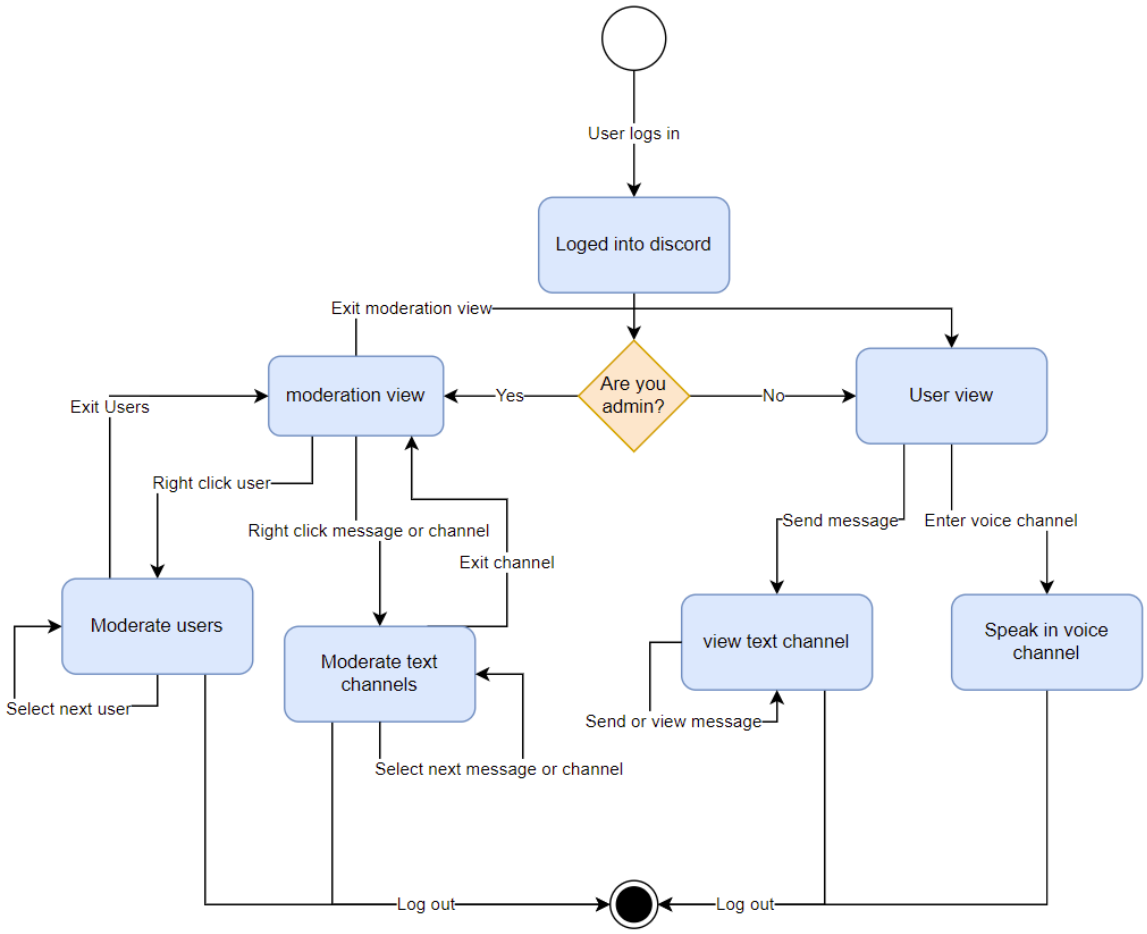
10. Communication Diagram



11. Sequence Diagram

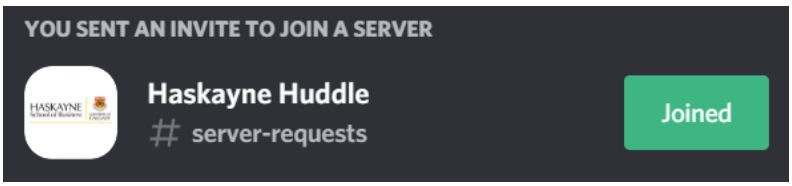


12. State Transition Diagram

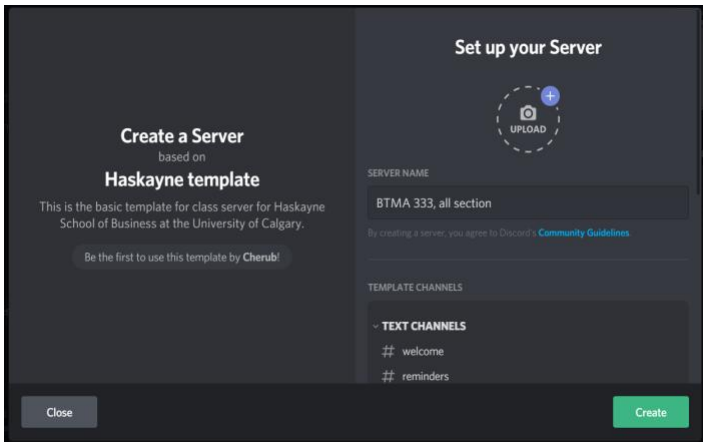


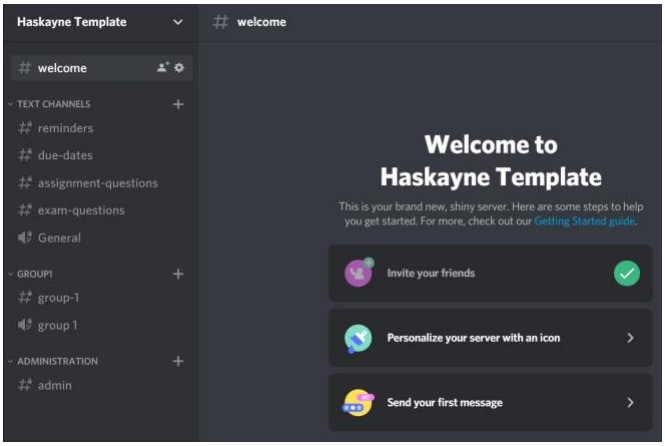
13. Prototype Design

1. Haskayne Huddle would be a large community server where all Haskayne Students and staff could join and interact. This will act as a central hub where different concentrations can mingle and ask questions. All the Haskayne clubs will have a presence here and will be free to promote upcoming events. This server will also serve as the classroom server request, where professors can make a request from the volunteer group to set up a server for their class.

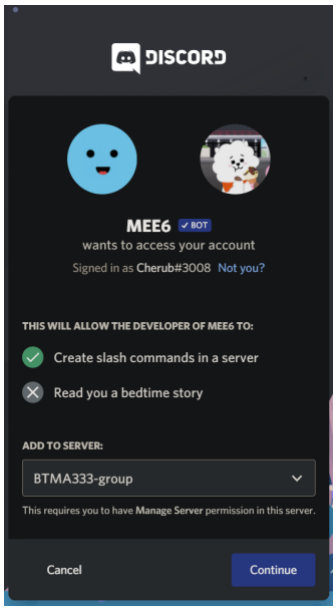


2. **A Template server:** this is a pre-built server that can be made by simply clicking on a link. The server will come prebuilt with basic text channels, privacy settings, and roles to distinguish students, TA's, and the professors.





3. **MEE6:** MEE6 is a third-party auto moderation bot that will help moderate the server. It helps block swearing, can monitor participation and can answer commonly asked questions. The paid version of this bot which offers more control like member roles and fun games will be used in the Haskayne Huddle main server, while the free version will be utilised in the small class servers.



Implementation

1. **Technical Support Team**

2. **Test Plan & Method of Instalment**
   - 2.1. Activity Diagram

3. **Engagement Plan**
   - 3.1. Current Students
   - 3.2. Haskayne Faculty
   - 3.3. Professors
   - 3.4. Academic Development Specialists

4. **Risk and Mitigation of Implementation**
   - 4.1. Risk and Mitigation Table

5. **Post Implementation Review**
   - 5.1. Objectives
   - 5.2. Implementation Plan Figure
   - 5.3. Project Scope
   - 5.4. Implementation Strategy

6. **Conclusion**

1. Technical Support Team

A basic server template on discord will be created for professors to use with their courses. We plan to have a designated group of students to provide any support to professors throughout the term if needed. In the chance that professors want to customize their templates to better suit their needs, these students will be available to consult and assist.

1. Gather student volunteers
2. Make tutorial videos - how to set up a server
3. Basic template for Haskayne
4. Profs will submit their requests and 2 weeks before volunteers will set up the server and after hand over ownership of the server to the professors

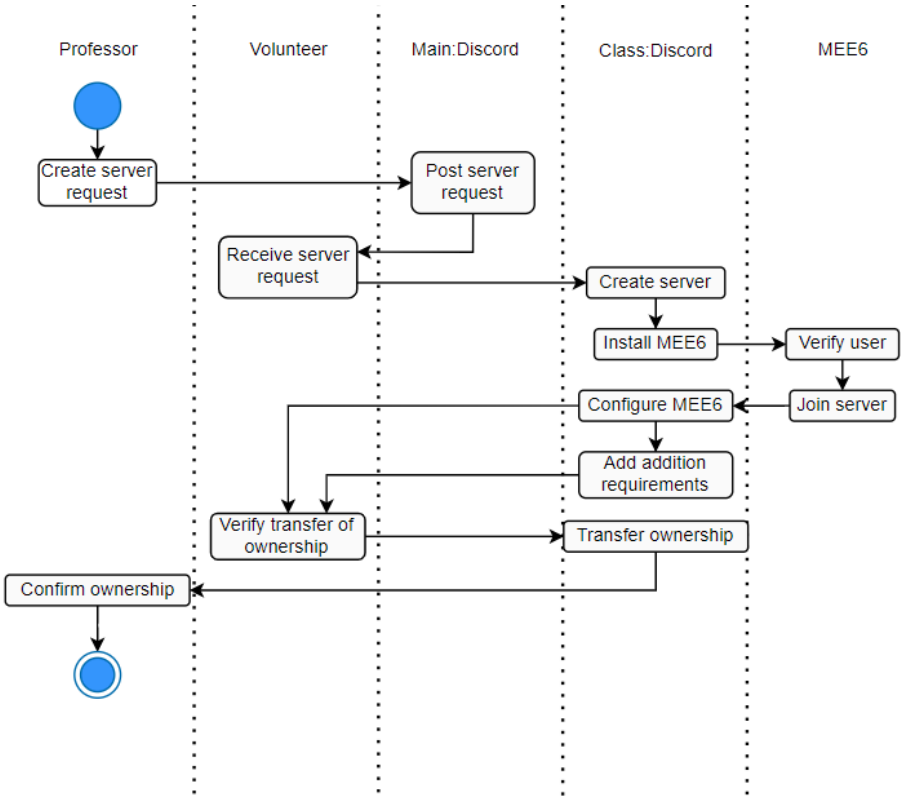
2. Method of Instalment

https://discord.new/fSkZHC83mVak

Method of Instalment

1. Two weeks before the start of classes round up students or TA's to set up the class discord server
2. Create the server named ClassName-Section.
3. Create the server from the template provided.
4. Install recommended automation bots.
5. Set up automation bots.
6. Configure server to additional needs of the professor upon request.
7. Transfer ownership of the server to the lead professor.
8. Professor will generate a link to the server and link it in the classes D2L page.

2.1 Activity diagram



3. Engagement Plan

To ensure that all stakeholders involved are supported and our system is being used, we have come up with an engagement plan targeted at certain groups within the faculty.

Current Students

To get students to use the platform, we would ask professors to make the discord channel. Any outside of the classroom communication, including group communication would have to happen on the discord channel. Students would not have an option; it would just be mandatory in order to engage with their classes. It would allow for quicker response by both professors and students.

Haskayne Faculty

The Haskayne Faculty oversee the main discord. The faculty will use the Discord to update students on any information including events taking place or student opportunities. To help mitigate or foresee any concerns with the server, the faculty will work with the volunteer team.

Professors

Professors will use this to converse with students outside of the classroom. They will have the opportunity to assign chatrooms to groups as well as a main chatroom in which they can provide updates and answer questions. The professors will send over a list of student names to the volunteers who will set up their server. The server will be administered by the professor and the ta. Any concerns may be addressed to the volunteers or the ta.

Academic Development Specialists

Academic specialists can set up a chatroom to post any general information. It will provide them with a platform to answer any general questions students may have. Academic specialists will monitor the chatroom while any concerns or issues can be taken to the volunteer team.

4. Risks and Mitigation if Implementation

Risks:	Description:	Mitigation:	Probability:
System is not fully functional	In order for this system to be utilized to its full potential, it should be released at the beginning of a semester.	Do not fully release the system, allow professors that are capable to set up their own Discord page.	10%
Flaw in the system security measures	There is an error in the program that is in charge of only allowing certain users into groups.	Through the administrative controls, the group can be “locked”, this will prevent users from being able to post in the group.	15%

Third party system used for security and profanity is down	The bot application that this system uses is not functioning, this could be a result of an update or internal error.	Through the administrative controls, the group can be “locked”, this will prevent users from being able to post in the group.	25%
Students not using this system	Students are not engaging with this system.	Have professors encourage their students to use Discord by posting information about upcoming assignments and tests.	50% (Either yes, they use it, or no they don’t)

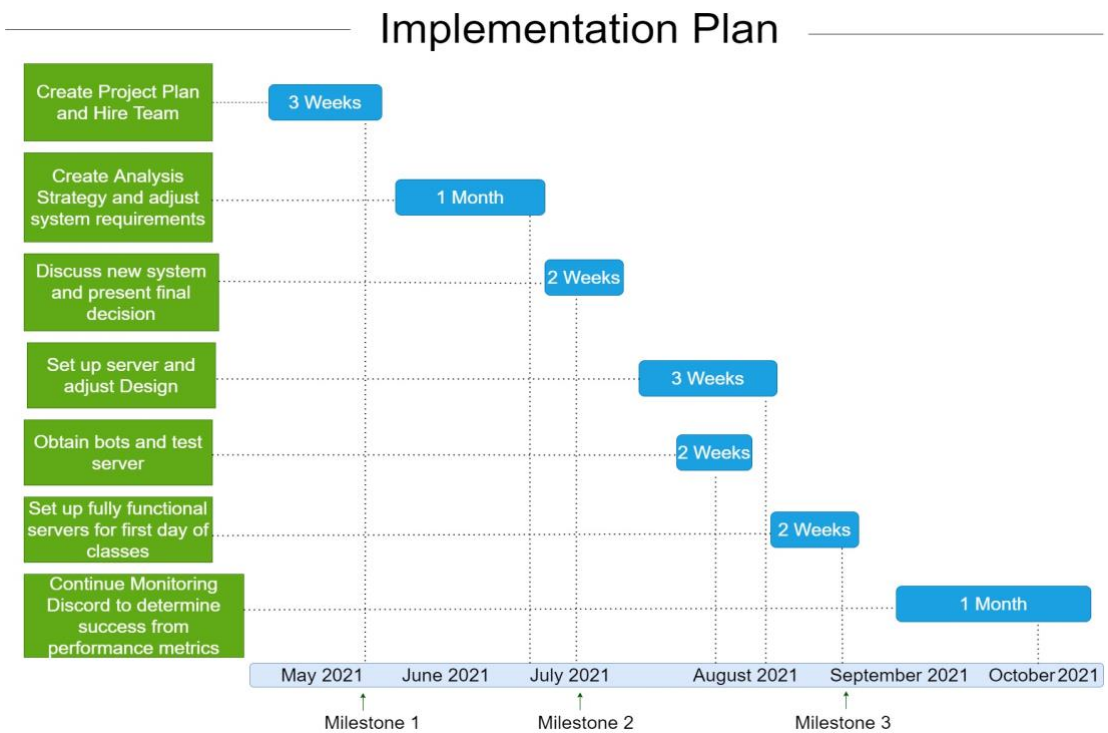
Professors are not using the system	Professors are not posting and uploading information to their class groups.	Have it become a requirement that each class must have their own discord group. Certain professors may not be technologically capable to organize this, their TA or student volunteer can assist.	50% (Either yes, they use it, or no they don't)
Discord itself is down or unresponsive.	The third-party application that we are utilizing for our system is down or unresponsive.	Administration will be able to notify the users, through email or posts on D2L. Because Discord is so heavily used, this situation would be rectified quickly.	5%

5. Post Implementation Review

Objectives

The main objective of this project is to improve student mental health by giving students with a better university experience. One of the main reasons behind deteriorating mental health is the lack of peer-to-peer communication among University of Calgary students. The imposed solution of having students join discord groups for their respective classes should drastically increase the number of contacts they have in their university life. This solution was built with respect to student rate of adoption and the cost incurred by the university. The imposed solution incorporates D2L and discord, which are two systems that university students are familiar with. This will make it easier for the solution to be adopted widely throughout Haskayne School of Business. The ease of incorporating both these systems presents a cost-effective method for the University to address student's mental health.

Implementation Plan Figure



Project Scope

The project meets the scope of focusing on increasing engagement between students at the Haskayne School of Business. As this solution is implemented, we will get more insights as to how active these discord groups are. The implementation of having group discords for every class will promote peer-to-peer interactions and help students develop more meaningful connections at the university. One of the main reasons for mental health conditions arise from the feeling of isolation. Having discord groups for every class will present students with an opportunity to reach out to people in a way that is convenient and one that takes less effort. The imposed solution will promote student voice and provide a safe space where they can interact with each other. Having discord groups where students can come together will also improve the sense of community among students. This will help them foster deeper connections and friendships. The imposed solution makes it easier for students to adopt to the new system due to their familiarity with discord. As discord is an app that students already use widely, they will be more inclined to engage with their fellow classmates. An increase in peer-to-peer engagement will provide students with a sense of community and improve mental health among students. We are confident that this proposed solution will meet project scope and exceed expectations.

Project Schedule

The project schedule will be met with ease. The project requires the creation of discord and then implementing various bots that will be used to monitor these chats for profanity and academic misconduct. This can be done very quickly as there are various bots that are already available for use in Discord. Some functions may require making a bot from scratch, but due to its simplicity it could be done very easily and very quickly.

6. Conclusion

This project is the most cost effective and feasible option, while also addressing the root problem of a lack of community and peer-to-peer relationships. By creating a unified platform for communication, we can encourage interactions amongst students and faculty to reduce the feeling of isolation. The solution allows students to access course material and also offers a platform to facilitate group work, class discussion, and course assistance. Additionally, having chat rooms and the ability to voice and video chat can aid the feeling of community, and can contribute to student mental health. It also offers a social space outside of academics for clubs and other extracurricular activities.