CSCI 5020G: Collaborative Research & Design
Winter 2018 Project: Student Mentorship

Client

Student Experience Centre, UOIT

Please only contact the client through Steve, who will aggregate questions and pass them along in batches. (See below for deadlines)

Problem Statement

UOIT has, for some time, been running a peer mentor program, wherein student mentors are connected with mentees in order to help them through the university.

Current System

The peer mentor program run by the Student Experience Centre at UOIT is designed to:

- ***Establish an inclusive and welcoming community of peers*** that cultivates a network and culture of mentorship.
- ***Provide support and guidance to UOIT students through various transitions in their post-secondary journey***.
- ***Engage participants in personal growth, life-long learning and leadership opportunities*** through flexible, experiential programming that leverages the development of interpersonal, academic and professional skills.

In the 2016/17 academic year a variety of specialty peer mentor programs (First Generation students, specific faculty programs, International students, etc.) were all combined into a centralized program. The goal was to simplify the program making it more accessible to students, and also to recognize that the intersectionality of our students meant that many students fell into various categories and were left needing to choose which program to be a part of.

This program required students to register for the program in order to be assigned a mentor. Students registering for the program filled out a student profile (http://studentlife.uoit.ca/student-experience-centre/peermentoring/student-profile.php). This information was used to manually match them with one of our approximately 50 Peer Mentors. With over 100 students registering for the program in the summer of 2016 this became a time intensive process which limited the future expansion of the program.

Once the matching was complete operationalizing the program was largely in the hands of the mentors. They are to have 3 meetings (September, January, April) with the program coordinator (full time UOIT Staff member) and fill out a log of their contact with mentees on a monthly basis.

These processes have all been manageable at our current student usage (about 125 mentees and 50 mentors).

The Challenge

Moving forward the peer mentoring program is going to be incorporated into our September Orientation programming. This means we expect to go from 125 student mentees to 1250 student mentees in one year. This presents a variety of challenges:

- The matching process is our biggest obstacle. We need an automated way to match mentees and mentors that factors in various things like faculty, program, interests, co-curricular involvement etc.
- We will be moving from 1-3 students per mentor to approximately 5-10 students per mentor
    - This means the logs will need to be more specific to each student and be able to be completed quickly
    - Ideally these logs will also be automatically summarized for the full time staff member to review with the ability for mentors to flag specific issues to be reported directly
- Program assessment – with so many first years participating in the program the full time staff will lose connection with the first years entirely. We will need to develop a method to complete feedback from them in a simple way similar to the log that will need to be in place for the mentors.
- Tracking – with over 1000 students in the program we can assume they will not all continue participating beyond September. We need to develop a way to track the continued engagement of mentees and mentors.

What is do be done…

Step One: Background Research and Brainstorming

Discuss which areas of computer science may be relevant to this problem.

Can you think of related problems where a solution to our client's problem may have applicability (i.e. to increase the marketability of your solution)?

As a group, find one or more foundational research papers relevant to this problem (preferably not an applied or systems paper, but rather a theoretical or algorithm paper). Come to class on February 1st prepared to describe your selected paper to the rest of the class. This will be a discussion, not a presentation (no Powerpoint). Also, post a link to your paper and a brief summary to the class discussion forum.

Along with this background paper, this will kick start your brainstorming.

You should also, as a group, compose any follow-up or clarification questions for the client and send them to Steve by January 20th. Come to class on January 23rd prepared to think, talk and explore how what you see in CS and related areas can contribute to a solution to the problems the mentorship team have.

Between January 22 and February 27

The interim will be spent working on potential solutions to the problem, brainstorming and peer feedback. This is best managed through video conferencing, collaborative tools that you are comfortable with, and consistent contact with Steve and each other when needed. Steve will be available in class times via Skype and by appointment too. The class in ERC 1092 is reserved for class times. Out of class you will work as a group to refine your solution and prepare the interim proposal.

Step Two: Solution Pitch (20%)

For February 27th, you will prepare a project proposal brief. This maximum 2 page document should outline the concept of your solution and give a justification, identify novel aspects (competitive advantages), and describe technical details at a high level. In an appendix, provide a checklist plan for what remains to be completed to create a full proposal. By February 27th each group will post a video proposal of up to 20 minutes to outline their proposed solution and receive peer feedback. The proposal brief and presentation are worth 10% each.

Step Three: Solution Proposal (60%, plus 10% Hackathon/Demo)

For April 3rd, prepare a project solution proposal for the client. This document should outline the concept of your solution and give a justification, identify novel aspects (competitive advantages), and describe technical details at a level which can convince the client that your solution is practical, sensibly budgeted, technically achievable, and meets all requirements. On April 3rd each group will have up to 30 minutes to pitch their proposed solution to the client and a further 10-20 minutes to demonstrate their implemented prototype. Further details on this step and requirements, as well as the requirements for the demonstration, will be provided later.

Academic Integrity

This is a group assignment. While you should work with your group mates, you may not collaborate with other groups, or reuse material from previous offerings of this or similar courses.

Please include this statement on the cover page of your report:

"We certify that this work is our own, submitted for CSCI 5020G in compliance with the UOIT Academic Integrity Policy."

In this course, you MAY NOT review, copy or otherwise use any graded academic assignments from prior semesters or other sections of this course or similar courses, in written, electronic, or verbal form, used in whole or part, including formatting of any assignment.

Effective Group Work

Each group will be provided with a workspace on Blackboard, including a Wiki and other collaboration tools. Groups are requested to use this technology so that the instructor can monitor group progress.

Useful methods for coming to a mutual understanding about individual responsibilities include:

[1] Document all meetings

- assign someone in each meeting to be the note-taker
- record the date, time, and attendance of the meeting
- record what was discussed and what was decided
- specify the agreement of who will work on what
- set a deadline for the work to be submitted to the group

The idea of these meeting minutes is not to be an evidence gathering exercise, but rather to ensure a common understanding and expectation about the group goals, responsibilities, and timelines.

[2] Keep records of individual contributions

I will not be assessing drafts of individual work for quality, only the final group report counts, however, these documents can be used to support a case for unequal grading due to unequal effort, if necessary.

[3] Keep in close contact with each other

- If you cannot meet an agreed deadline, contact your group members immediately and in writing (email).
- If email/Blackboard is too slow, share phone numbers and text one another.
- Arrange meetings in advance and set a start and an end time to ensure availability of members, or inform members in advance if your availability is limited.

[4] Be respectful of one another and try to have fun!

This means respecting one another's specific talents and challenges, as well as respecting each other's time. I suggest you arrange a social activity such as going off campus to meet for coffee or having a lunch meeting.

Unequal Grading

Groups who are experiencing difficulties working together are expected to make an initial attempt at resolving any disagreements. If this fails, the group must arrange a meeting with me in which *all group members will be in attendance*. In order to avail of the unequal grading provisions outlined below, this meeting must be requested and take place before the work in question is submitted. In the meeting I will try to mediate a solution and assist the group in planning for the remainder of the project.

If, after all of these steps, group members still feel that there has been a strongly uneven contribution, *each student must submit* a zero-sum percentage adjustment, including yourself, e.g.:

- John + 20%, Robyn + 30%, Caleb -50%, me 0% = 0%
- Michael -5%, Ciara +30%, Josua -10%, me -15% = 0%

The average of adjustments will be applied. For example, if the base group grade is 75% and Michael's average adjustment is +5%, then Michael's grade will be (1.05 * 75% = 79%). Adjusted grades will be capped in the range [0,100%].