User Needs

sdmay23-proj040

Project Overview

There is a lack of communication between students and professors in large scale classrooms. Our purpose is to design an interactive learning platform to engage large classrooms.

We plan to create a web based application with many features that include:
- Professors can post questions for students to answer, and vice versa (text, image, audio, visual)
- Share qualities to both tophat and piazza
- Conversations between students and professors, group or individualized
- Provide data to professor's/TA's for extra grading schemes
- Additional features

Our end goal is to create easy communication between students and professors both during class and outside of class.

1.1 Problem Statement

There is a long standing problem in large lectures for both students and professors. The problem is a lack of effective communication and interaction between the students and the professor. Many if not all of us have been a part of lectures where the professor will lecture for 50 minutes, and occasionally stop and ask if there are any questions, but for the most part the professor is met with silence. Another problem is some lecture halls are so large it is just too hard to hear a conversation between the back of the room and the front of the room where the professor is. This problem occurs in all large size lecture halls across campus and most of us are familiar with these kinds of situations. This problem is important because student professor communication is very important. Not only does communication allow the professor to know what students are struggling with, it also allows for meaningful discussions and clarification on important topics. Many students feel as though they can't ask questions for fear of being perceived as dumb or stupid which is why they stay silent. To solve these problems we will be developing an interactive learning tool to bridge the gap between students and professors. Our application will have chat rooms for different courses led by a professor. In these chat rooms the students will be able to DM each other, raise their hand, anonymously ask questions, and answer in class polls created by the professor. By allowing students to raise their hand it will give the professor a notification that there is a question which is much easier than scanning a lecture hall of 300 for a physical hand. To combat the problem of shy students, the anonymous chat feature will allow students to anonymously ask questions and allow them to feel more comfortable in the classroom. The polling feature will allow the professor to engage with the students more and periodically check if the students are understanding the day's lecture. The

chat rooms will be open 24/7 and students will be able to communicate during class as well as outside of class. This application aims to bridge the gap in communication for large size classes.

1.2 Intended Users and Uses

1.2.1 List and Description of Users (Key Characteristics)

Persona 1: StudentA

- *Characteristics:*
    - Doesn't feel confident raising their hand in classes with over 25 people
- *Personality & emotions:*
    - Shy
    - Quiet
    - Tired
- *Motivations:*
    - Wants questions to be heard in class
    - Wants to participate in class discussions
    - Wants to feel involved

Persona 2: StudentB

- *Characteristics:*
    - Possibly missed a class (or more)
    - Possibly wasn't paying attention in class
- *Personality & emotions:*
    - Busy
    - Overwhelmed
- *Motivations:*
    - Wants to review what was covered in class
    - Wants to gauge the understanding of other students (based on questions)
    - Wants to get caught up in the class

Persona 3: ProfessorA

- *Characteristics:*
    - Professor teaching a large classroom
    - Cannot hear people from the back of the classroom
- *Personality & emotions:*
    - Intelligent
    - Knowledgeable
- *Motivations:*
    - Wants to have a record of students who participate

- ○ Wants to encourage every student to ask questions
  - ○ Wants to feel inclusive

Persona 4: ProfessorB

- ● *Characteristics:*
  - ○ Professor teaching a large classroom
  - ○ A new professor or new to teaching large classrooms
- ● *Personality & emotions:*
  - ○ Intelligent
  - ○ Overwhelmed
  - ○ Nervous
- ● *Motivations:*
  - ○ Wants to know how well the students are understanding their lectures
  - ○ Wants to get feedback of their teaching from students
  - ○ Wants to improve their teaching techniques with the use of polls/questions

Persona 5: TA

- ● *Characteristics:*
  - ○ Assistant teaching large classes
  - ○ Has little to no assistant teaching experience
- ● *Personality & emotions:*
  - ○ Nervous
  - ○ Overwhelmed
- ● *Motivations:*
  - ○ Wants to help students that are struggling
  - ○ Wants to know which students need more help/ explanations
  - ○ Wants to feel helpful
  - ○ Wants to take student participation into account when grading

1.2.2 User Needs

Professor A and B: (Experienced or not experienced with large classroom setting)
- ● Be able to address live in-class / out of class questions in queue from students
- ● Be able to assess understanding of a topic from whole class based on polls
- ● Be able to track attendance of class based on the students who used the app
- ● Ability to create polls comprised of multiple question styles
- ● Can see order of students who have their hands raised to address each of them

Student A: (Shy Student)
- ● Be able to ask questions anonymously
- ● Be able to participate in polls, and answer questions in class / out of class
- ● Be able to DM the TA, and Professor.

- Be able to raise hand through the app and join queue for questions

Student B: (Behind Student wanting to catch up)

- Be able to ask questions anonymously
- Be able to view others questions and answers to take notes
- Be able to participate in polls, and answer questions in class / out of class
- Be able to view poll results to learn from them
- Be able to DM the TA, and Professor.
- Be able to raise hand through the app and join queue for questions

TA:

- Be able to DM other students and Professor to address questions
- Be able to view student attendance through app to help assess when grading
- Can see order of students who have their hands raised to address each of them

1.2.3 Use Cases and Their Benefits for each User

Use Case: Create a New Course

- *Primary User:* **ProfessorA** or **ProfessorB**
- *Scenario:*
  1. Professor begins the form for creating a new course.
  2. Professor enters course properties (name, course code, etc.).
  3. Professor enters the Student and TA rosters, each consisting of a list of Net-IDs.
  4. Professor submits the form.
  5. System creates the course and records for each member of the roster that they are in the course and what their role is (Student or TA).
- *Benefits for each User:*
  1. **Professor:** Is able to create courses at will and specify their student rosters ahead of time. Can add TAs to the course.
  2. **Student:** Is automatically added to any courses they are enrolled in.
  3. **TA:** Is automatically added to any course they are assisting in.

Use Case: Post a Live Poll

- *Primary User:* **ProfessorA** or **ProfessorB** or **TA**
- *Scenario:*
  1. Professor or TA ("Lecturer") creates and defines a new poll post.
  2. Lecturer, when ready, opens the poll for a configured length of time.
  3. Students quickly see the poll and respond.
  4. Lecturer manually closes the poll early or the poll closes after the specified time.
  5. System releases the poll results to the Students.
  6. System logs participants and results with the poll for later viewing by the Professor or a TA.
- *Benefits for each User:*

1. **Professor:** Is able to run a live poll during a lecture. Can retrieve a record of who participated in the poll and what their answer was to determine grades or attendance.
2. **Student:** Is able to quickly see and respond to a poll after it begins. Can see if they were correct or not after the poll ends.
3. **TA:** Is able to run a live poll during a lecture in the event that they are teaching that day.

Use Case: Ask a Question

- *Primary User:* **Student**
- *Scenario:*
    1. Student creates a new question/chat post.
    2. Student types his/her question and specifies if anonymous.
    3. Student attaches any relevant files.
    4. Student submits the post.
    5. (If during lecture) Professor and/or TA is notified of the question.
    6. Professor or TA responds to the question, revealing the true identity of the Student if inappropriate.
- *Benefits for each User:*
    1. **Professor:** Is able to promptly see questions when they are asked. Can respond to questions not answered during the lecture. Can view who posted an anonymous question in case it was inappropriate.
    2. **Student:** Is able to ask a question during a large lecture without the need to get the lecturer's attention. Can ask questions anonymously (in the eyes of other Students). Has flexibility in the format of the question, including file attachments.
    3. **TA:** Is able to assist the Professor in responding to questions.

Use Case: Locate a Post

- *Primary User:* **Student**
- *Scenario:*
    1. Student selects the "Filter" option of the course feed.
    2. Student chooses which filters apply to the post they are looking for.
    3. System updates the feed to include only those posts matching the filters.
    4. Student browses the updated post list.
    5. Student finds the post he/she wants or finds that it doesn't exist.
- *Benefits for each User:*
    1. **Student:** Is able to quickly locate a past post. Can specify filters to better find the post they are looking for.
    2. **Professor:** Their Students can use past postings as a learning resource.

Use Case: Raise Hand

- *Primary User:* **Student**

- *Scenario:*
     1. Student selects the raise hand option during the lecture.
     2. Student enters a short description of their question and submits.
     3. Professor is notified that a Student has a question.
     4. Professor reads the question description and answers the question live.
- *Benefits for each User:*
     1. **Student:** Is able to get their questions answered expeditiously before the lecture continues on. Is not required to be heard by the Professor.
     2. **Professor:** Knows promptly whenever Students in a large classroom have a question. Can see the question without having to hear the Student.

(see Appendix for full use case analysis)

Conclusion

The key problem our project is attempting to solve is the lack of communication and engagement between a professor and the students in a large lecture hall, and so it is unsurprising that the users of our project will be professors, TAs, and students. While each user may have different perspectives and motivations, the main, overarching needs for professors and TAs will be to track attendance, poll the class, and answer questions, while students mainly need to be able to ask questions and answer polls. Based on these needs, we came up with some use cases that our system needs to be able to handle including the ability to create a new course, post a live poll, ask a question, locate previous posts, and a "raise hand" functionality.

Appendix

Use Case Analysis
https://drive.google.com/file/d/1Dezs7GJhedPhc9qxSG2CyzRLn-oczWKJ/view?usp=sharing