Speak↑
“Better lectures, powered by real-time student data”

Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Role</th>
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<tbody>
<tr>
<td>Brad Reyes</td>
<td>breyes28@</td>
<td>Developer</td>
</tr>
<tr>
<td>Karen Gomez</td>
<td>kgomez@</td>
<td>User Testing</td>
</tr>
<tr>
<td>Nick Akiona</td>
<td>nakiona@</td>
<td>Design</td>
</tr>
<tr>
<td>Reid Watson</td>
<td>rawatson@</td>
<td>Manager and Documentation</td>
</tr>
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Project Summary

Giving an engaging, interesting, and effective lecture to more than 50 students isn’t easy. Lectures occur infrequently, and most instructors don’t get actionable feedback when students are confused. This problem can be equally frustrating for students, who become bored when they feel confused by lecture content.

SpeakUp aims to provide real time data about student understanding to lecturers, and offer concrete ways for lecturers to keep students interested. SpeakUp allows students to easily indicate their confusion when watching lectures, respond to “clicker questions” in real time, and helps instructors improve their course content with real time feedback on engagement and clicker questions.
UI Sketches - Design 1

**STUDENT VIEW**

General Frame / Ro. Around App
Settings

Scenario:
Student will use General Frame to navigate to a specific class, view history for a class, or add a new class.

Inner Display: Interface for asking questions, answering questions, and submitting feedback.
List View
Navigate between major tasks by swiping left + right on the inner display.

**LECTURER VIEW**

General Frame for App
Settings

Scenario:
Lecturer uses General Frame to navigate around the app (home, view trends, and questions, search, etc.)
Inner Display: Interface for lecturer to view data and submit questions (on other sketches).
Navigate between major tasks by swiping left + right on the inner display.
The professor can pose a question during lecture and give the students time to respond. The student can view the choices and select an answer by clicking the bubble next to each choice.

**Question**: What is the solution to ODE?

**Student responses**

- A. \( y = (5/x)e^{-1} \)
- B. \( y = (c/x)e^{-1} \)
- C. \( y = x^2 + (c/x)e^{-1} \)
- D. \( y = 1/x + (c/x)e \)

**Professor view**

Professor can easily see how many students chose each answer.
UI Sketches - Design 2

After reviewing both of our sketched user interface designs, we have decided to continue developing Design 1. The navigation interface in Design 1 is cleaner and more intuitive than the interface of Design 2, and it allows for a wider range of actions to be performed by the user. Also, our goal for our mobile application is to be as easy to navigate as possible so more attention can go to the lecture, and although Design 2 is easy and simple, Design 1's navigation can get to any screen without having to go “back.” We felt that Design 2 offered less overall value to the lecturer and had a number of impractical features.

The slider interface of Design 1 allows for the quick submission of feedback from the student to the professor. In addition, the simplistic nature of the information allows for automated
processing of information from a large number of students. This is a huge advantage over Design 2 which would require manually processing of all reviews. In the instance, more value is derived from the whole of information being processed rather than individual instances of feedback.

We toyed with the idea of allowing students to input multiple answers as shown in Design 2, which is what makes it different than Design 1. However, we didn’t think that this idea was better than having the questions appear on the student’s screen as shown in Design 1, making it easy to read and quickly accessible to students.

Asking the lecturer questions is also much more intuitive in Design 1. Students scan over the top questions that are in the queue before inputting their own question, rather than inputting a question initially and later reading the the same question has already been asked. Although we had a nifty feature in design 2, which let students and/or TA’s answer questions posed by other students, we found this design was noble yet inherently flawed since it would distract the student even more by trying to answer other student’s questions. Overall, we believe that Design 1 represents a far more powerful, practical, and desirable product than Design 2.

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<th>Feature</th>
<th>Description</th>
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<tr>
<td>Lecturers can ask students questions</td>
<td>Lecturers can pose questions to students who answer through the app. The app collects the data and interprets it for the lecturer.</td>
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<td>Students can give feedback</td>
<td>Students can submit feedback on the lecture during class. Lecturer can view the current levels of attentiveness and understanding of students during a lecture.</td>
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<tr>
<td>Students can ask questions</td>
<td>Students can submit questions during lecture for the lecturer to answer or clarify.</td>
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<tr>
<td>Student: Question History</td>
<td>Students can see their answers and all of the correct answers for questions that were asked during previous lectures.</td>
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<tr>
<td>Lecturer: Trends</td>
<td>Lecturers can view trends of student attentiveness and feedback between lectures.</td>
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UI Storyboard - Scenario 1 (Student gives feedback during lecture)

In this scenario, the student opens up the app and gets to the menu. By swiping to the desired screen for feedback, a student can change the sliders to share their current feelings about the lecture.
The lecturer can then see current understanding or other feelings about the students during lecture and has the power to accommodate this feedback in the current lecture or future lectures.
UI Storyboard - Scenario 2 (Student answers question)

Select an answer:
- A. $y = \frac{5}{x}e^{-1}$
- B. $y = \frac{6}{x} + \frac{c}{x}e^{-1}$
- C. $y = \frac{2}{x} + \frac{c}{x}e^{-1}$
- D. $y = \frac{1}{x} + \frac{c}{x}e$

Student view
The student can view the choices and select an answer by clicking the bubble next to each choice.
In scenario 2, a student answers a question asked by the professor. The student goes to the main menu again and swipes the screen until the student gets to the question. The student selects an answer by touching it, and the lecturer can view the results as answers come in.

**UI Storyboard - Scenario 3 (Student asks questions)**
A student can go the menu screen and swipe across the screen until he or she gets to the desired location, which is the screen that allows students to pose a question to the lecturer. The student can read through questions posed by other students and can upvote certain ones so there are no duplicate questions. The professor will see the most popular questions asked.
**Video Planning Storyboard**

**Scene 2: Contrast**

**Dialogue/Texts**
- *Why is he talking about the eye?*
- *That was interesting... why didn't he spend more time on that?*
- *I'm so confused...*

**Notes**
- Apprehensive/Dissengaged Posture
- Tense/Compressed or Open
- Set in Lecture Hall
- Camera Always on Students
- Face in Focus Sound of Lecture

**Scene 2: Questions**

**Dialogue/Texts**
- *Could you explain Fourier transforms in more detail?*
- *How did you derive that equation?*
- *Why is this important?*

**Notes**
- Same setup as Scene 1
- Students more engaged
- Students submitting Qs to lecturer via more app

**Scene 3: Transition**

**Dialogue/Texts**
- "Speakup helps organize and convey information about students' engagement, understanding, and questions during a large lecture."

**Notes**
- Visual Focus/Empathic On Prop. Reading Through Questions
- Blurred Video/Scene

**Scene 3: Prof. Reading G**

**Dialogue/Texts**
- Visual Focus/Empathic On Prop. Reading Through Questions
- Short Win Speaking
Scene 4: Free Quiz Question
Dialogue/Texts
"So I looked over the questions you’ve been submitting and there are a few I really want to cover...
"Many, one of you asked: why do we need to use Fourier transforms? Will let’s talk about that...

*Post Responses To Questions Submitted By Students During Lecture

Scene 5: Free Page 9
Dialogue/Texts
"Now that I’ve answered a few of your questions I’d like to ask one of my own to measure your understanding of the material."

*Post Asking Students A Question
*In Order To Measure Student Understanding

Scene 6: Students Ask
Dialogue/Texts
*Which of these is the correct solution to the ODE?

*Voice Of Instructor Reading A
*Action Of Student Answering Question On Phone

Scene 7: Feedback
Dialogue/Texts
*The slides on the eye didn’t feel relevant
*I enjoyed the takeaways on how to use courses–spend more time on use than theory.

*Students Submitting Feedback On Lecture
*Tone Is Very Positive

Scene 8: End Of Lecture
Dialogue/Texts
"That’s the end of lecture for today... thanks for coming and for all the feedback. See you next time.

*End Of Lec
*Blind Out Transition

Scene 9: Prof Add Feedback
Dialogue/Texts
*Prof Reading Feedback From Students
*Impose Feedback From Scene 7
**Concept Video Description**

This project required extensive planning before any filming could actually be done. This made the planning stages of the project the most time consuming and rigorous part of the assignment. More specifically, constructing the video storyboard and sticking to it during shooting was more difficult than we anticipated. It was especially stressful when we had to take multiple shots of certain scenes since we knew we would not have time to reshoot any scenes on later days. Another difficulty in the assignment was the fact that none of our group members had any extensive video editing experience. Our lack of experience with Windows Movie Maker caused the editing process to be slower than anticipated.

We caught a break when one of Nick’s friends knew how to use Final Cut Pro, which made the video look much more polished and professional than its original state, which was made from Windows Movie Maker. The storyboarding session also went smoothly because our tasks and scenarios could all be easily incorporated into one story and video without feeling forced or awkward. Since we rely on narration for a large portion of the video, we were able to find a great recording tool and a friend with a much better narration voice than any of the group members, again adding to the polished quality of the video.

Design prep took the longest of any phase in this assignment. UI designs and UI storyboard took approximately three hours while storyboarding for the concept video took about two hours. Shooting was relatively short thanks to the concept video storyboard, as it took about an hour and a half. Editing took about five hours between the unpolished version we made in Windows Movie Maker and the adjustments and polishing we did to it in Final Cut Pro.

Link to our video!

[https://www.dropbox.com/s/cuvmj51qoudmt72/SpeakUp%20Demo.mov?dl=0](https://www.dropbox.com/s/cuvmj51qoudmt72/SpeakUp%20Demo.mov?dl=0)