

# EDUvote Team Work Plan

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## Stakeholders (Annie)

Educational Programs (Schools, Universities, Courses)

- Want to invest in technology to foster classroom participation and student growth
- Are currently the main market that clickers target

Instructors

- Are interested in increasing participation in their classes and engaging students
- Are interesting in seeing growth of students over time
- Want to keep track of attendance of students in class
- Want an easy interface for students and instructors to communicate through

Students

- Want to see how they're doing in their classes
- Students would only be a stakeholder if the class that he/she is in has set up an EDUvote account already

## Resources (Qui)

Time

- We have one week to build a minimal viable product, and then three more weeks to build a fully functioning prototype.

Cost

- Initially, we have a very small budget, around \$50.
- If this project were to be adopted by many instructors, we would require funding for additional Twilio phone numbers.

Twilio phone numbers

- We need to buy phone numbers from Twilio to receive and send text messages.
- Each phone number costs \$1/month.
- Each phone number can only send 1 message/second, so a large class may need several phone numbers so that everyone can receive prompt feedback.

Space and computation limitations

- The app will be hosted on a free Heroku account, so we are limited to 512 MB RAM, 1 CPU, and 10K database rows.

## Tasks List (Annie)

**P4.1: Design Doc - 11/12**

Casey - Data Model, MVP Design

Annie - Purpose and Goals, Context Diagram, Design Challenges

Katie - Security Concerns, Design Challenges, User Interface

Qui - Key Concepts, Feature Descriptions

Everything done by the morning of 11/12

Everyone - look over all parts of the design doc on 11/12 and make any necessary changes

#### **P4.2: MVP - 11/17**

Beginning of week:

Casey - Log in/Sign In/Sessions, create models

Annie - Set up view/controllers for log in, sign in, student view, instructor view

Starting Thursday:

Katie - Set up Twilio, link up to models

Qui - Create methods for different kinds of data analysis, testing

Saturday/Sunday morning:

Everyone - Get together and work on any loose ends

Everyone - Everything else that might come up

#### **Risks** (Qui)

What if student tell friends outside the classroom whenever there is a question, so that students not attending class can still text in responses and receive participation credit?

- If instructors ask several short questions throughout lecture (as they do now with the clicker system), this will be infeasible.
- The time frame of each question will be too short for someone outside the classroom to respond unless they are paying close attention.
- Combined with the fact that there will be several questions throughout lecture, the effort-to-reward ratio is high enough that students would not find cheating worth their time.

What if students pass on answers to questions after class (since the answers will be stored in their phones as text messages)?

- We could randomize the order of questions or multiple choice options.
- Typically getting the correct answer for a question has no effect on a student's grade (the clicker system is participation based), so there is little incentive to pass on answers.

What if the usage of phones becomes a distraction for students?

- The professor could tell students to put away their phones after the window for responses is over. Most students are likely to put away their phones if the professor specifically asks them to do so.
- Many students already use their phones in class for non-classroom related reasons.

Brief phone usage as part of the curriculum will be unlikely to change behavior one way or the other.

What if some students are unable to send text messages during class? Possible reasons: no cell service, no cell phone, no texting plan, etc.

- We will build an interface so that students can submit their answers online, via WiFi, which all classrooms have.

### **Minimum viable product** (Casey)

#### **Feature Descriptions:**

**Creation of questions:** Instructors will be able to create questions and associate them with courses.

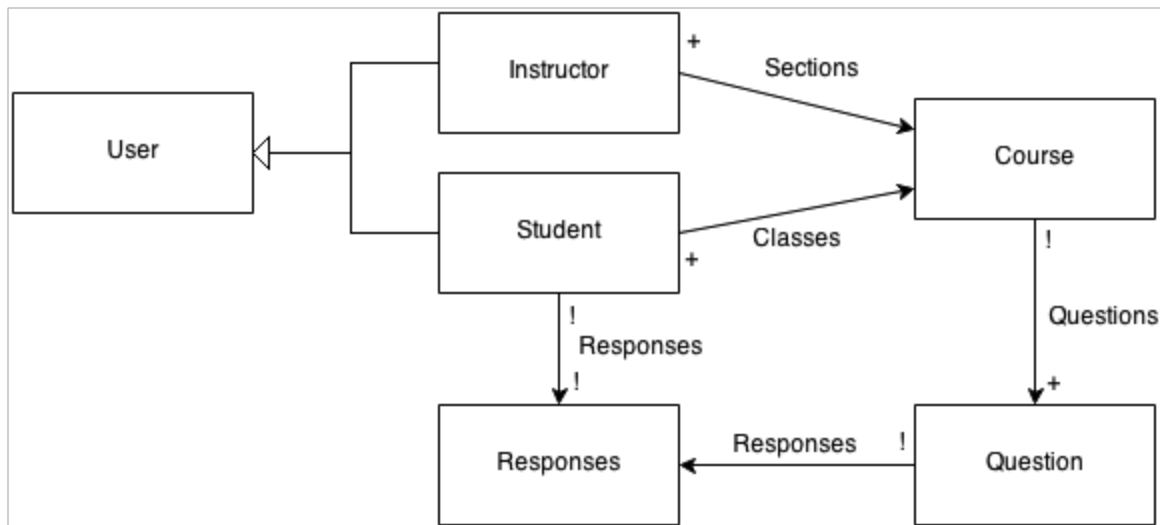
**Display view for questions:** Instructors can show questions to their students from the application.

**Receive responses from students via text message:** Students can send text messages containing their response to a predetermined phone number, and the responses will be received by EDUvote.

**Send feedback to students on their responses via text message:** After a student submits a response to a question, EDUvote can send text messages containing feedback. This feedback can be customized by instructors.

**Analysis of student responses:** Instructors will be able to view a summary of responses for each question.

## Data Model:



## Issues Postponed:

**Different types of questions:** For now we will only support multiple choice questions that have answers.

**Caching:** For now we will always just reconstruct charts from the database when we display them. In the future we will consider caching data which is likely to be accessed often.

**Students without Phones:** For now we will assume that all users have access to a phone which can text. In the future we will design an interface to allow students to vote from their computers.

**Useful Types of Analysis:** For now we will only allow instructors to view a summary of responses for a given problem. Students will not have access to any analysis tools. In the future we will determine which forms of analysis will be most useful to both instructors and students and provide analysis tools which are useful without making the product too complicated for users to understand.