TellUs

Connect and engage with your students

The Team

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Problem Description

Positive student-teacher relationships enable enhanced learning experiences and productive classroom environments; however, connections between teachers and their students are difficult to facilitate. Teachers want to create and grow connections with their students but unfortunately do not have the time to do so because of high student-to-teacher ratios found in public schools. This causes students to not feel valued and understood which then negatively affects their classroom performance.

Solution Overview

With TellUs, students and teachers submit how they are feeling at the beginning of class in a very efficient manner- through emojis. Teachers can then view the synthesized data of student submissions and can use this information to tailor the classroom experience accordingly to make students feel understood. TellUs is a new approach to integrate social-emotional learning into the classroom.

Tasks

Our three tasks have stayed the same over the evolution of our app since they are the main purposes TellUs provides for both teachers and students. Below, we describe each task along with an explanation of why we chose to incorporate it in our app.

Simple: Submit how you feel at the beginning of class.

Before a lesson begins, both teachers and students fill out an emoji "check-in" form where they choose an emoji that best represents their emotional well being or physical state. After selecting an emoji, they then describe why they are feeling that specific emotion/physical state the emoji conveys by expanding on the "because"/"but"/"and" prompt starter. After teachers submit, they are presented with a preview of their response before a final confirmation of the submission so that they can better understand if they want to edit their response or not since all of their students are going to be seeing it. After students submit, they see their teachers response. This task is the backbone of our app. We wanted students to feel understood by their teachers and this task allows them to communicate how they are feeling before class starts so that their teacher can take their feelings into consideration during the lesson. Since students are opening up in this task, we also wanted their teachers to open up with them, so by seeing their teacher's response at the end of their submission, students can also better understand and connect with their teacher during class.

Moderate: (for teachers only) View and analyze the synthesized data of student submissions

After a teacher submits how they are feeling, they then have access to the rest of the features in their dashboard which includes Data Breakdown. In this page, teachers can view the synthesized data of student submissions through an interactive pie chart. This interactive pie chart shows the percentage amount of each emoji selected by the students, and teachers can click on a specific section to view the students who chose that emoji. This task is vital for the teachers to understand how to tailor their lesson plan accordingly to give their students the best classroom experience. We also understand that teachers have no time to waste, so with the interactive pie chart, we wanted to provide teachers with a quick and clean overview of the student submission data so that they can easily analyze it in less than a minute.

Complex: (for teachers) Reach out to students who have been identified with changes in their emotional well being.

Another feature in the teacher dashboard is Student Alerts. This page provides teachers with a list of students that the app has identified as “downward trending” emotionally - meaning these students have been consistently choosing emojis that relate to a negative emotion. For each student, teachers have the options to send them a message to check in and to see the student’s history to gain more insight in why they are “downward trending.” We included this task because we understand that high school students may not feel comfortable in approaching their teachers about situations that affect their daily mood, so if they’ve been feeling negative for a period of time, we want to alert the teacher so that they know to reach out and check in with the student.

(for students) Reach out to a teacher for more support.

A student dashboard includes a messages feature where students can message only their teacher. We wanted to provide students a quick and easy way to communicate with their teachers if they do not feel comfortable approaching them directly.

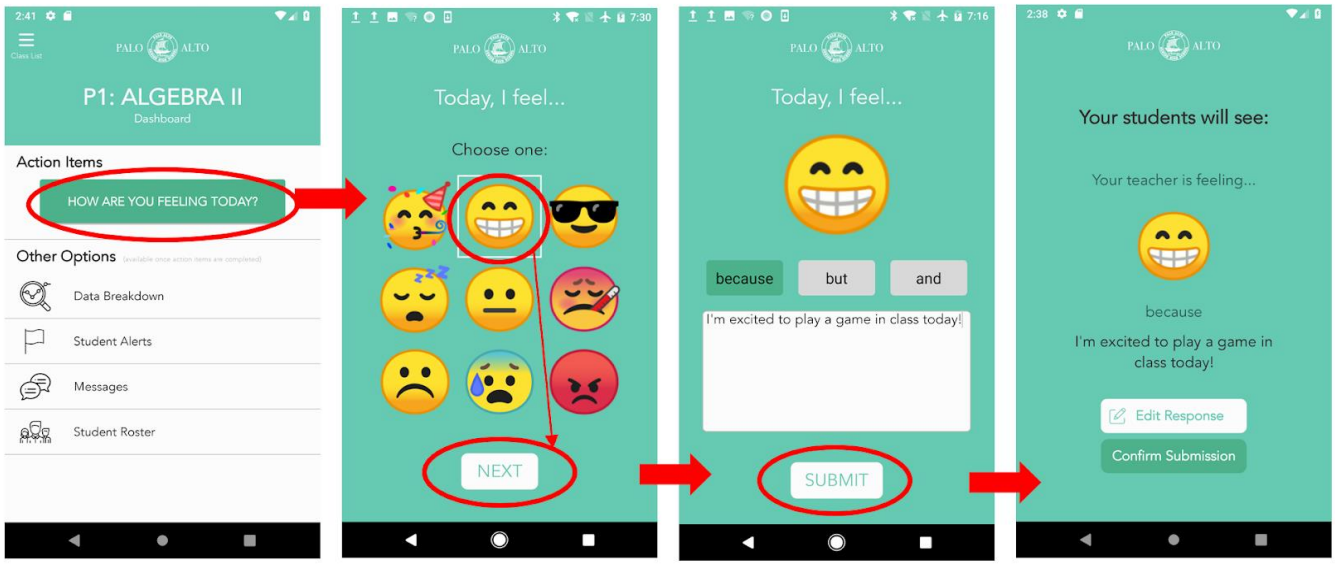
Task Flows

A red circle represents the region/button that will be clicked.

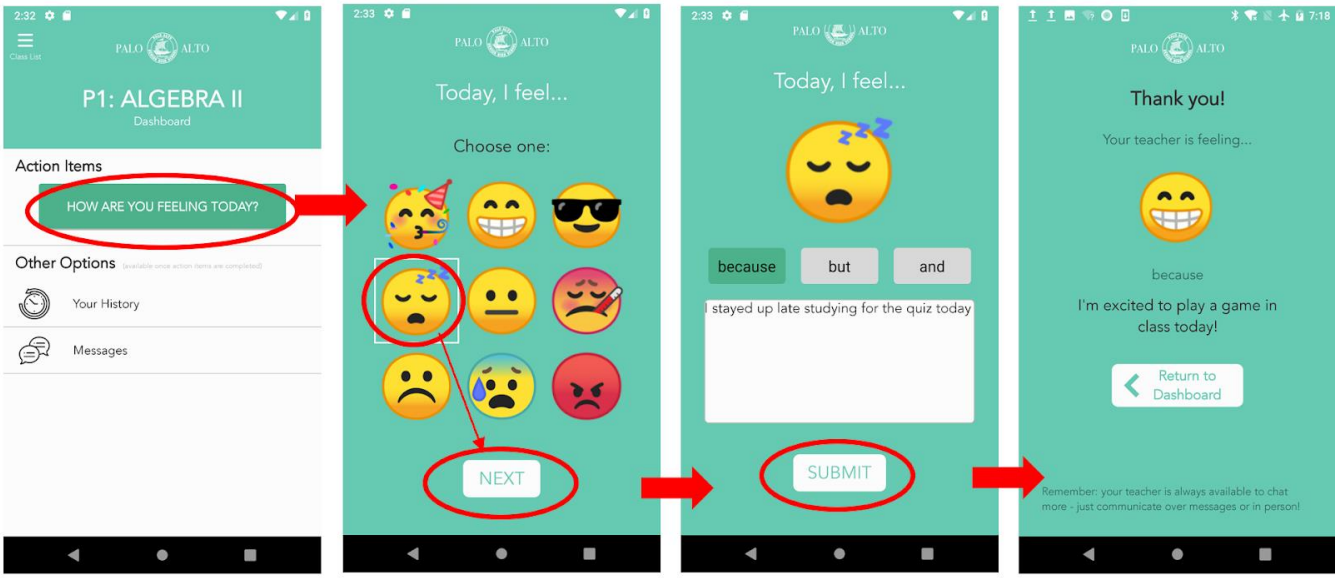
A thick red arrow shows the navigation of the next page in the interface.

Submit how you are feeling

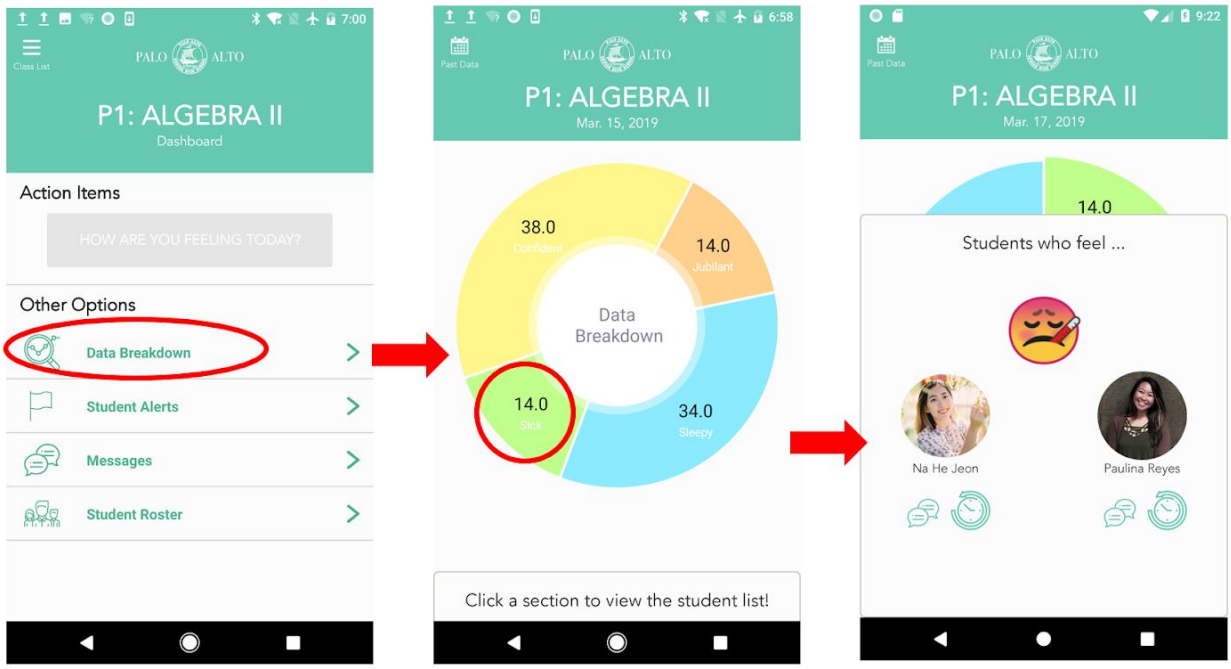
Teacher:



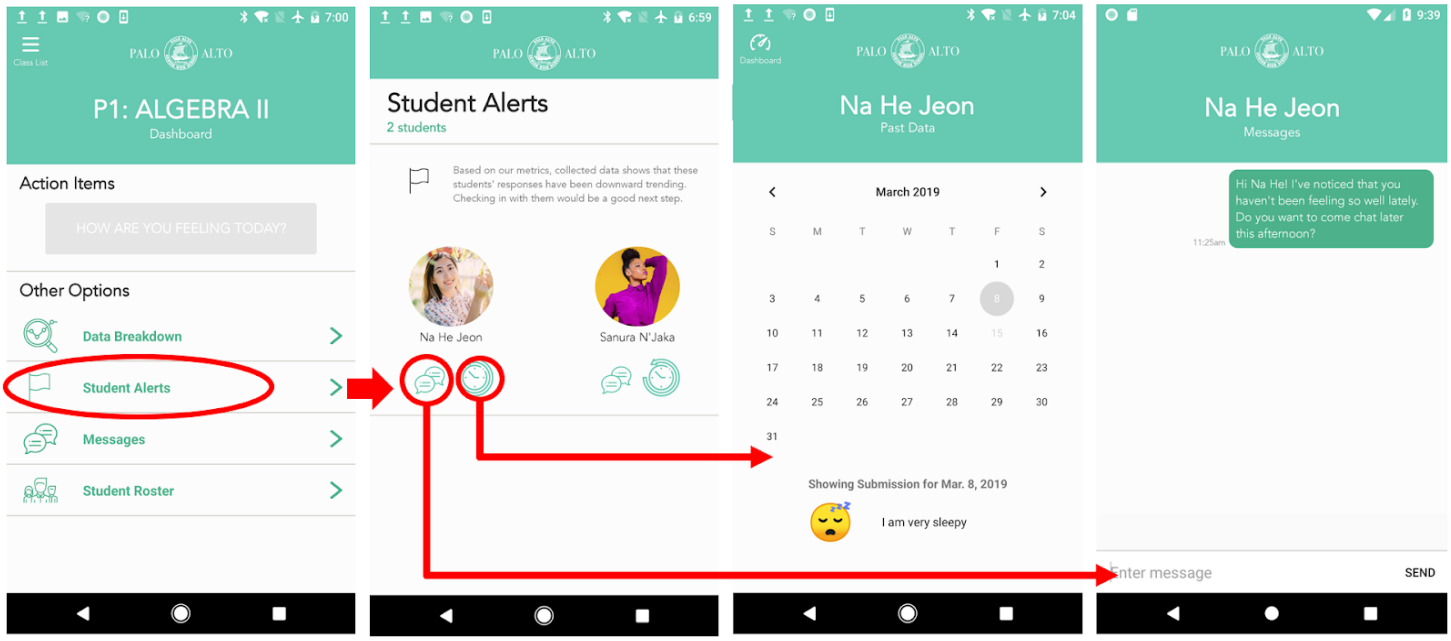
Student:



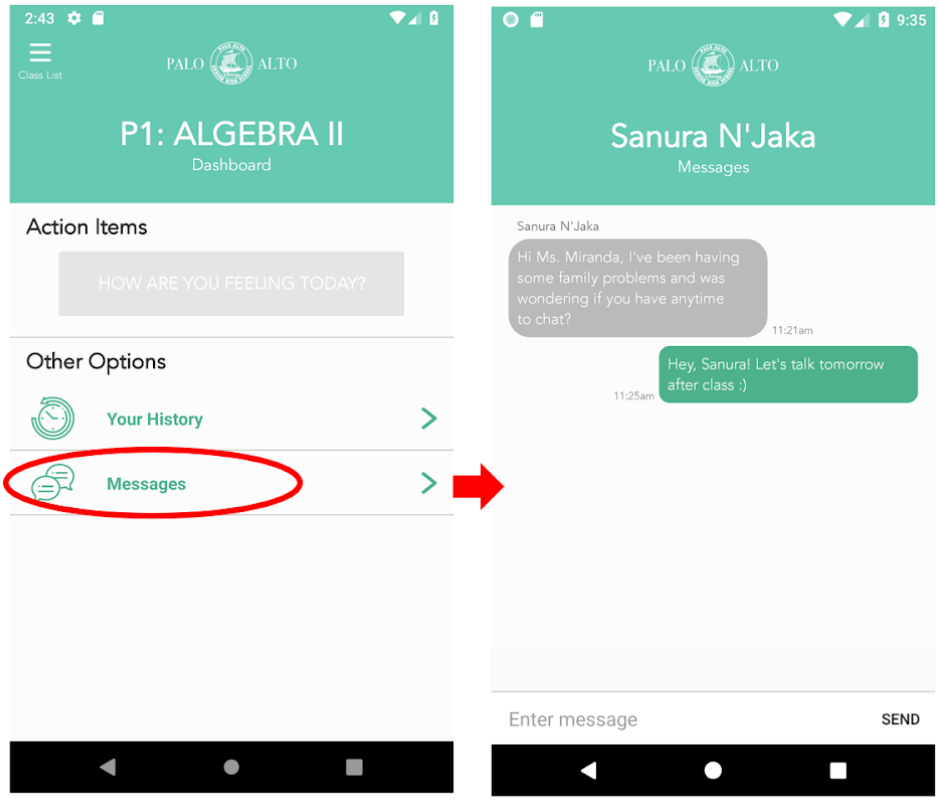
View and analyze the synthesized data of student submissions



Teacher: Reach out to students who have been identified with changes in their emotional well being.



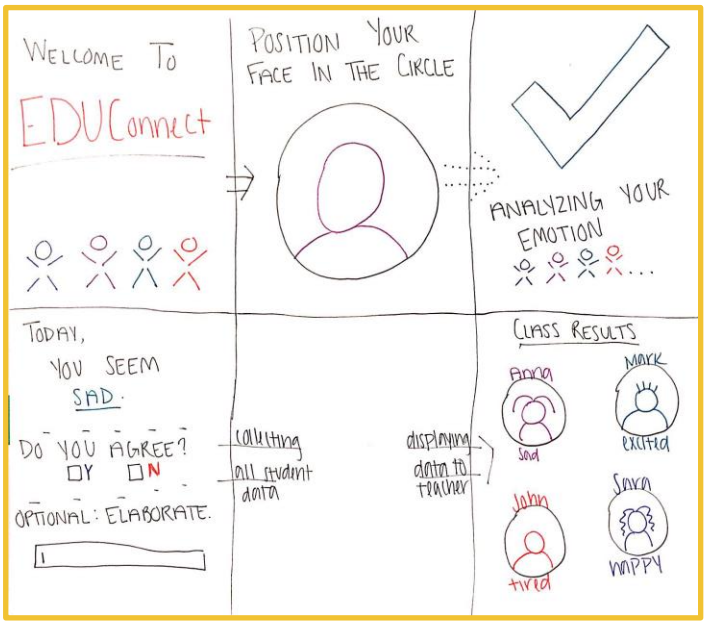
Student: Reach out to a teacher for more support.



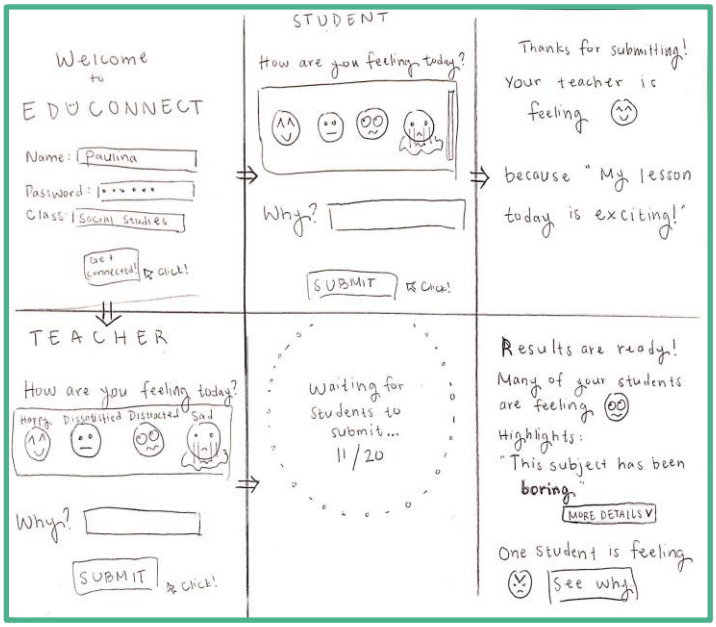
Design Evolution

Initial Sketches:

When thinking of solutions for the problem “How might we build positive student-teacher connections?”, we storyboarded different ideas relating to asking students how they are feeling and providing this data to the teacher. The final solution we decided to move forward with was an emoji check-in. Since high school students use emojis every day to communicate their feelings, we thought that incorporating emojis into this activity would make it less annoying and dreadful for them. We could then easily present the emoji submission data to teachers for them to analyze before they begin their lesson.



Emotion Facial Recognition

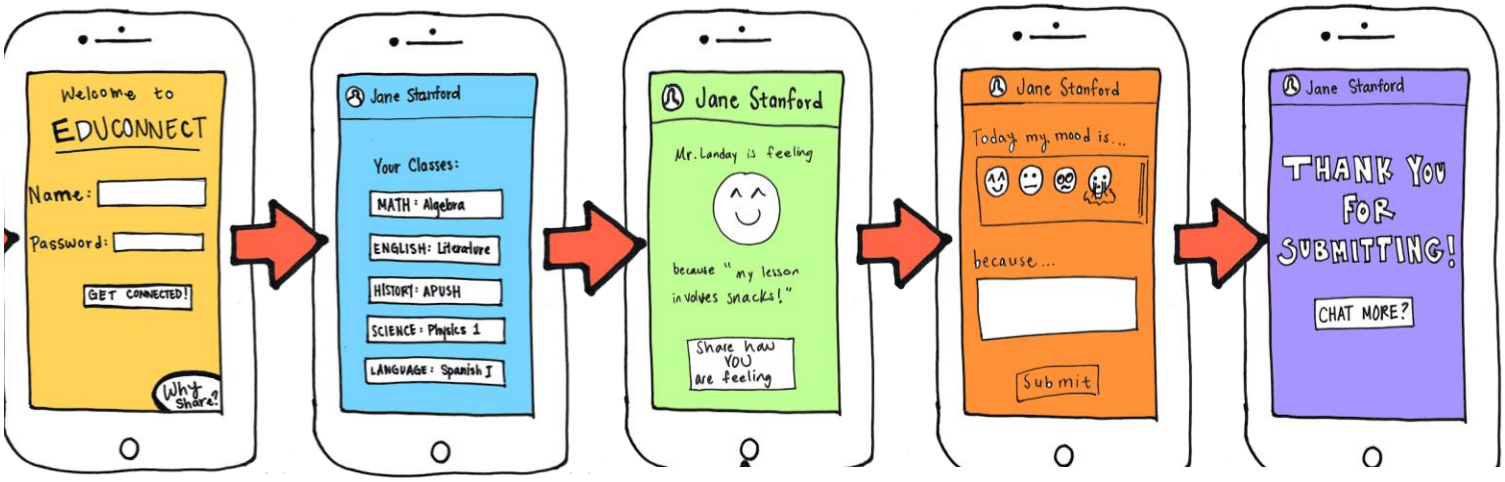


Emoji Emotions

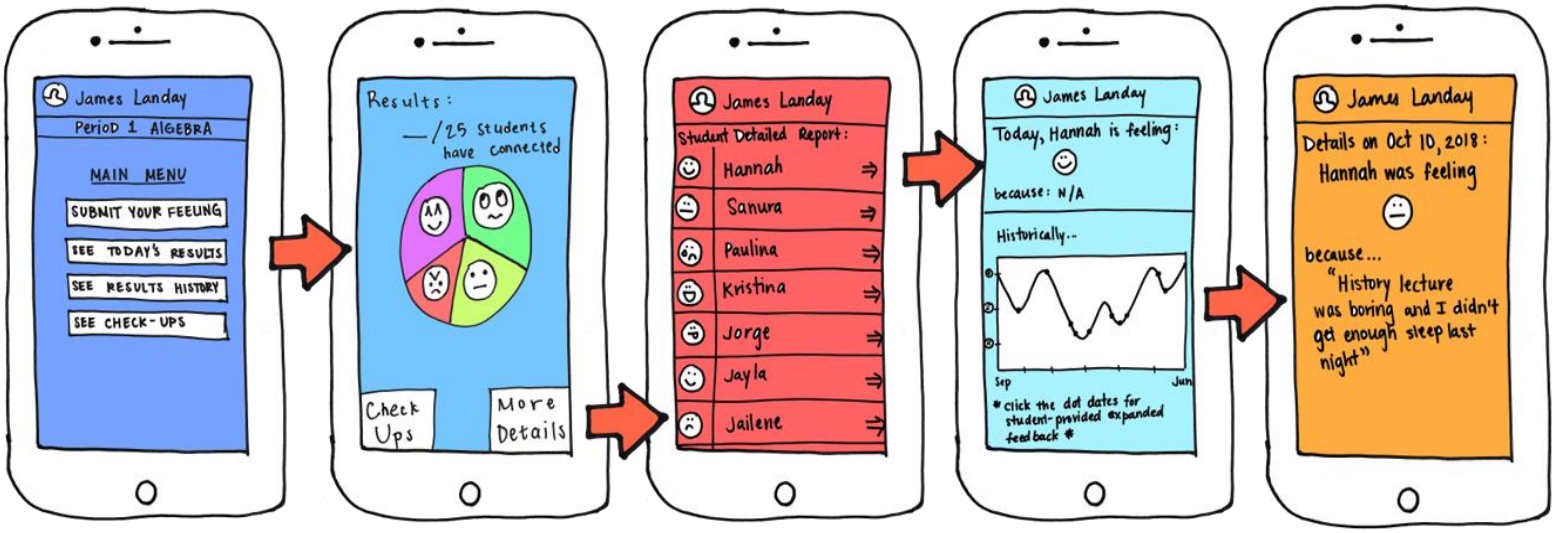
Low-Fi Prototype:

When creating our paper prototype from our storyboard emoji check-in idea, we added more features to create a cleaner and smoother interface. For the student interface, we decided to show the teacher's response before they completed their own response so that they feel prompted to be as open as their teacher was about how they are feeling. We also added added a "Chat More?" feature where the student can communicate more to the teacher about how they are feeling. For the teacher interface, we decided to include a pie chart to display the synthesized data of the emoji submissions and provide more options for the teacher to analyze this data if they have the time to through the "More Details" feature in the results page.

Student:



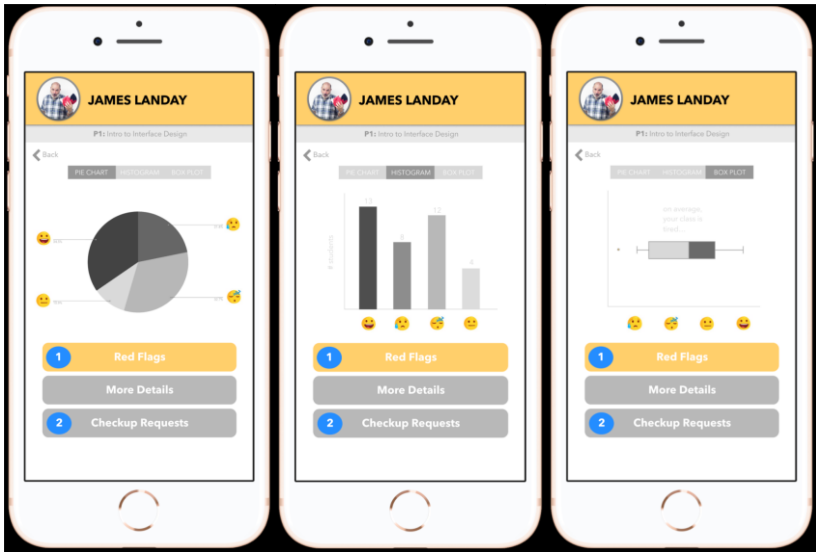
Teacher:



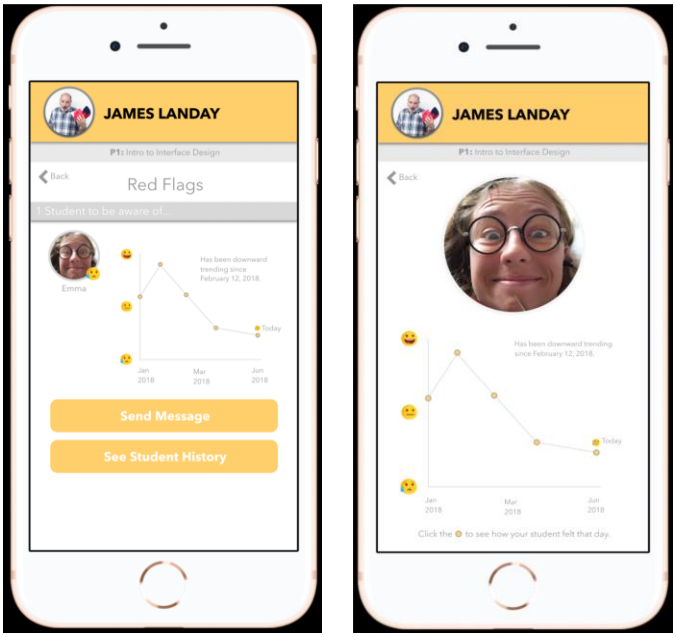
Med-Fi Prototype:

After testing our low-fi prototype with both teachers and high school students, we received feedback on two main things:

1. For the student interface, teachers thought it would be better for the app to show their response after the student submits their own response so that student's response isn't influenced by the teacher's response.
2. Teachers wanted more options to view the submission data other than a pie chart so that it's more customizable to their liking.



We also added a "Red Flags" feature to expand on our third task of reaching out to students who need extra attention. This feature sparked the idea of identifying "downward trending" students so that instead of the teacher just reaching out to students who took the first step of contacting the teacher for more support, the app would identify the students who need more support but are not reaching out to the teacher for it.

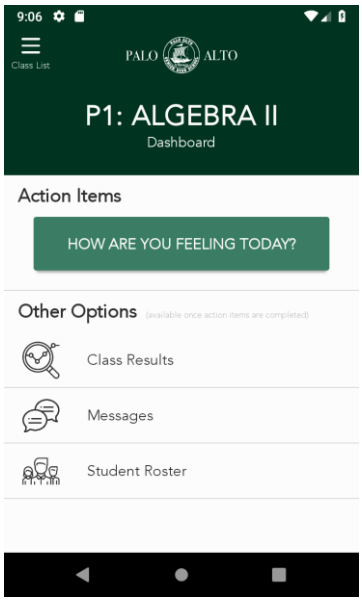


Hi-Fi Prototype 1:

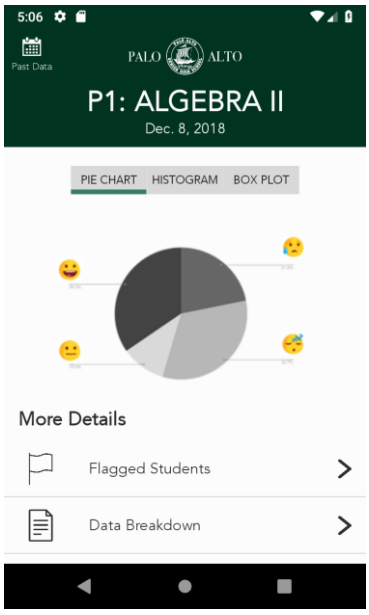
After heuristic evaluations from our peers, when creating our app in Android Studio, we addressed all usability problems and made drastic changes to the UI of our app.

- Color Scheme:

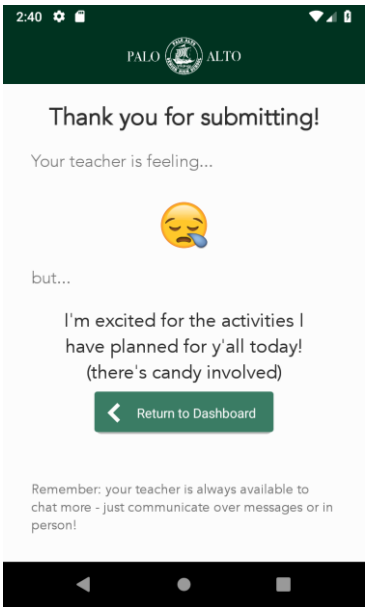
- Dashboard Design:



- Added date to “Class Results”



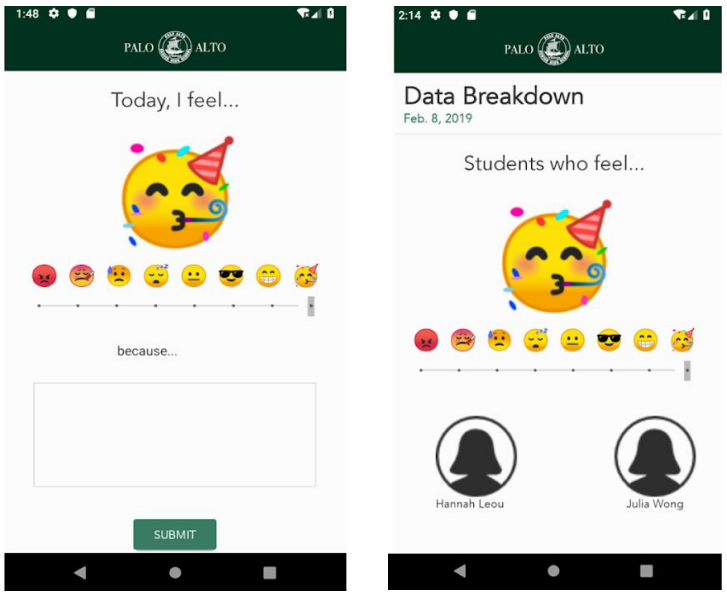
- Removed “Chat More?”



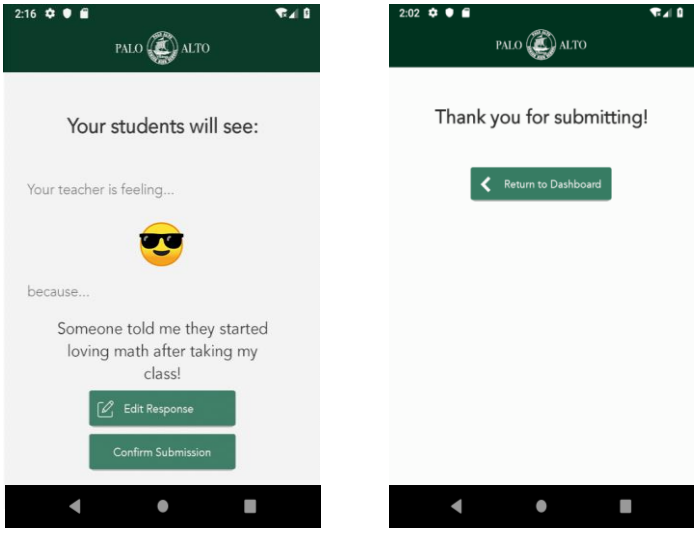
Hi-Fi Prototype 2: (changed app name from EduConnect to TellUs)

We tested our initial Hi-Fi prototype in a lab usability test where we received feedback from both teachers and students. The main feedback we received was:

1. Change the emoji list. Students want to see more representative emojis of their emotional and physical state such as the sleepy emoji. They also wanted fewer emojis since there's too many to choose from and they're all very small and cluttered. Therefore, we decided to change the 4x3 emoji grid to an 8 emoji horizontal slider. This slider was meant to show a linear representation of feelings, from negative to positive. We also incorporated the slider in the data breakdown page for teachers, so teachers can quickly see a list of students who chose each emoji.

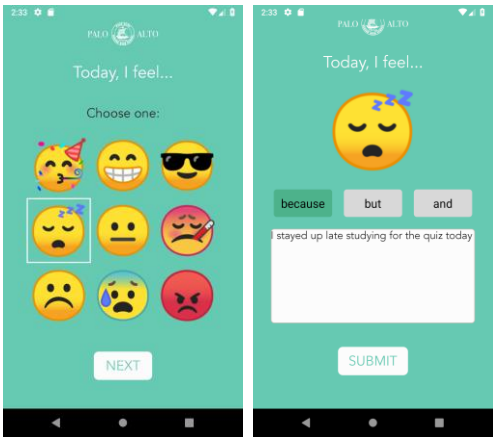


2. Since teachers are given the option to edit their response, they would like to see a preview of their response to understand better if they want to change it or not.



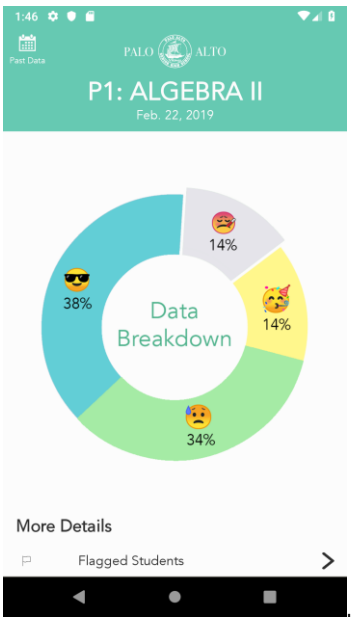
Hi-Fi Prototype 3:

In this iteration of our prototype, we decided to change our UI color scheme from a dark, harsh green to a lighter, friendlier green. After conducting a field usability test on our Hi-Fi prototype 2, we received negative feedback on the emoji slider from both students and teachers. It was not intuitive and the vertical bar that moves horizontally to choose the emoji was to small. Therefore, we decided to change the interface and task flow of choosing an emoji to submit how you are feeling. We dedicated a page just to select an emoji from a 3x3 grid and then a separate page for the explanation.

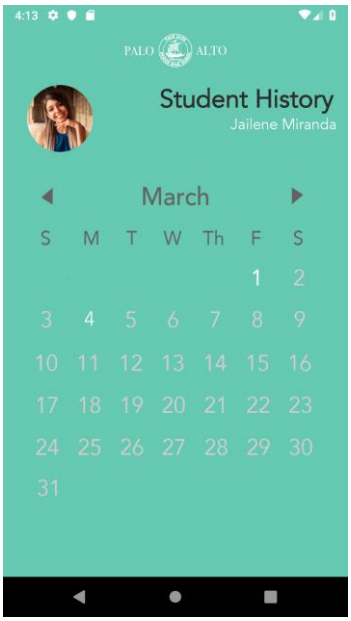


Other crucial changes:

- We replaced histogram and box plot with just interactive pie chart. We thought this option better displayed the synthesized data of emoji submissions; by clicking a section of the interactive pie chart, teachers can see the list of students who chose that emoji.



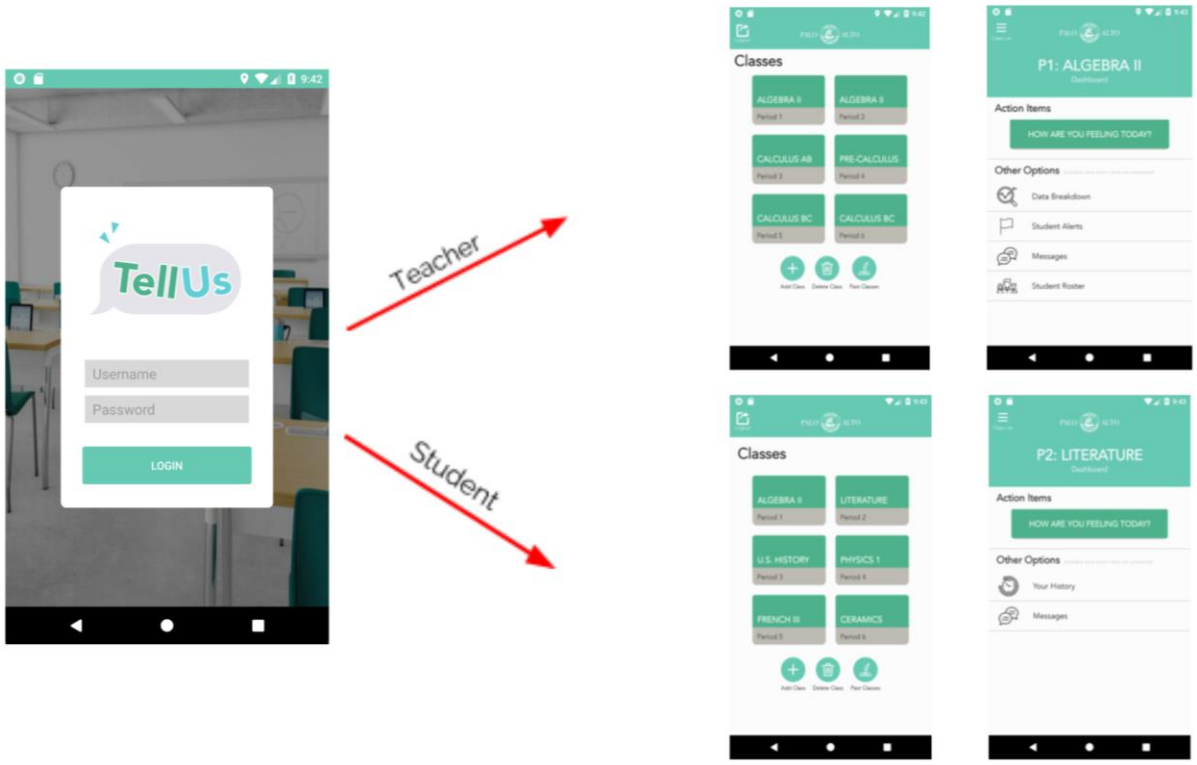
- We replaced the graph view of a student history with a calendar view instead so that a teacher can easily click on a date and view the submission of the student for that day (or a student can see his/her own past submissions)



Final Interface

Final UI Design

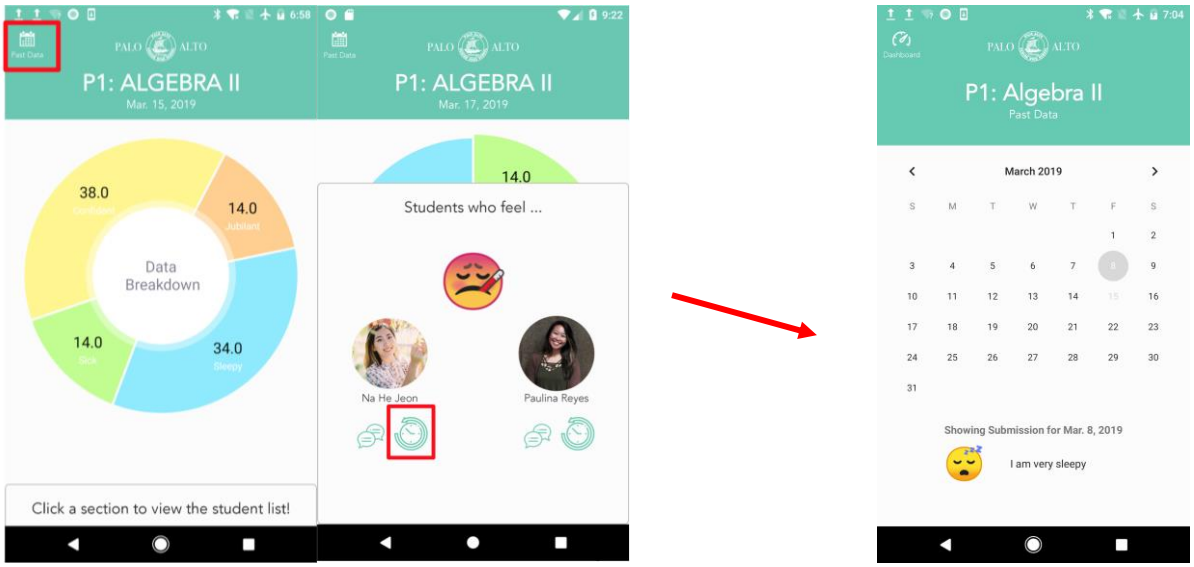
When a user first opens TellUs, they are prompted to log in. Ideally, schools will sign up with TellUs and we would use their database to get all of the teachers and students their own accounts with their own login information. Once the user enters their username and password, the app will register whether they are a student or a teacher and they will be sent to their class list.



From there, both users will have to click on their actionable item (complete Task 1) "HOW ARE YOU FEELING TODAY?" to be able to access the rest of their dashboard options.

After the rest of the dashboard items become available, teachers are able to view student submissions for the current day and class period in the "Data Breakdown" option of the dashboard as described earlier when Task 2 was first introduced. To reduce redundancy, we will simply go over some extra, relatively small features of the final implementation for this task:

When the teacher swipes up to view which students submitted each individual emoji, they can choose to message each student or see that student's submission history. If the teacher opts to view the student history, they will be taken to a calendar view of that student's current and past submissions. By just clicking on a day, they can view the emoji and description that the selected student submitted that day. Likewise, the teacher can select the "Past Data" button in the top right of the "Data Breakdown" screen to access the same calendar in which they will, instead, the responses for all students for each day.



Although we ended up with many iterations of our app, the main functionality always persisted. For this, our 3 tasks that we originally came up with have always been important to maintain. The most important aspect of TellUs is for Students and Teachers to be able to submit how they are feeling at the beginning of class (the teacher should technically be submitting before class begins so that each student can see their teacher's response for the day after they have submitted).

What was left unimplemented?

Although we we were able get the database up and running, we did not get to implement everything that was supposed to interact with the database. We intended to get all photos used on the app, all users, and all submissions on the database. While we did have some things in the database, such as users and photos, we did not have the time to make sure *everything* in the app that should have collaborated with the database was doing so.

Another important feature that was still being Wizard of Oz'd was the data synthesis. Although the graph is an actual interactive graph now, it currently shows hard-coded percentages/submissions. Likewise, the algorithm for the "Student Alerts" tab is also being Wizard Of Oz'd as that algorithm would be pretty difficult to implement was not one of the more important things to implement, as the concept comes across still from the hard-coded data.

Tools

We built our app using Android Studio for the front end and Firebase for the backend. Since only half our team has Mac laptops and most of our team had experience with Android Studio, we decided that was the best platform to use other than Xcode/Swift and React Native. This was helpful because everyone knew the code, but Android itself can have some limitation in design and available features.

We also used GitHub for version control. Which was a little bit difficult to use at first, since not all of our members had prior experience with version control. However, by the time we were finishing our app, we were getting very few merge conflicts and were able to successfully combine our code. This was very helpful because we all worked on different parts of the app on our own laptops, so it would have been hard to copy and paste code, or combine it some other way. Stack Overflow was very helpful when we were debugging errors that none of us had seen before.

Download

Our app is downloadable through the Beta by Crashlytics app. On your android phone, go to this link https://betas.to/RyAaq6rD, then enter your email address to confirm access, follow the instructions to download the Beta by Crashlytics app, and finally in the Beta by Crashlytics app, follow the instructions to download our TellUs app.

Making it Real

Team

Each one of us have been a student for 14-17 years. We have been high school students who have had positive and negative relationships with our teachers. We have had teachers who we could rely on, who recommended us to Stanford, and countless other teachers who have supported and fought for us along the way. Even beyond that, Paulina's parents are both teachers, and Jailene is an Education minor and has taught for two summers. As a team, we have an intimate connection to emotional issues of high school students.

Business Model

The business model of TellUs is a monthly subscription model, in which schools would pay TellUs a sum based on the number of teachers and students engaged in the system. Our customers are American high schools, although our users are teachers and students. There are about 26,000 pubic high schools and 10,000 private high schools in the United States. Each school would have dozens of teachers and hundreds of students, if not thousands. One statistic shows that there are 15.1 million public high school students in the United States.

TellUs would make money through the monthly subscription fee schools pay. The price we charge per school would be based on the number of teachers and students that use the app. Therefore, a smaller school would pay less. Also, we would have special pricing for schools that are located in areas with less socioeconomic capital, because the chief purpose of our app is to better the emotional lives of students.

We hope that a long-term use of TellUs within classes and schools create stronger bonds between students and schools. TellUs would be a special solace for students who need a place to lean on, but are not yet capable of speaking up for themselves. Through using our app, teachers would also feel more fulfilled because they are more aware of how their students are doing.

Summary

With the advent of EdTech, there have been numerous attempts to digitalize the classroom experience. These include the clicker app, where teachers ask a question and students submit their answers through an app, after which the data is synthesized for the teacher to view and analyze. However, previous attempts have focused on letting the students absorb the course material. TellUs innovates this space because it allows for a connection on the emotional side, which would be crucial in improving student-teacher connections and making schools become more comfortable of a space to the students. Through TellUs, teachers would feel more self-efficacy in that they would be helping the students beyond the classroom material. As for students, they would be able to view school as an essential part of their personal growth and teachers as an important part of their precollegiate life.