TA²I

TIMELY, ACCURATE, INSIGHTFUL

1 Nov, 2024

THE TEAM
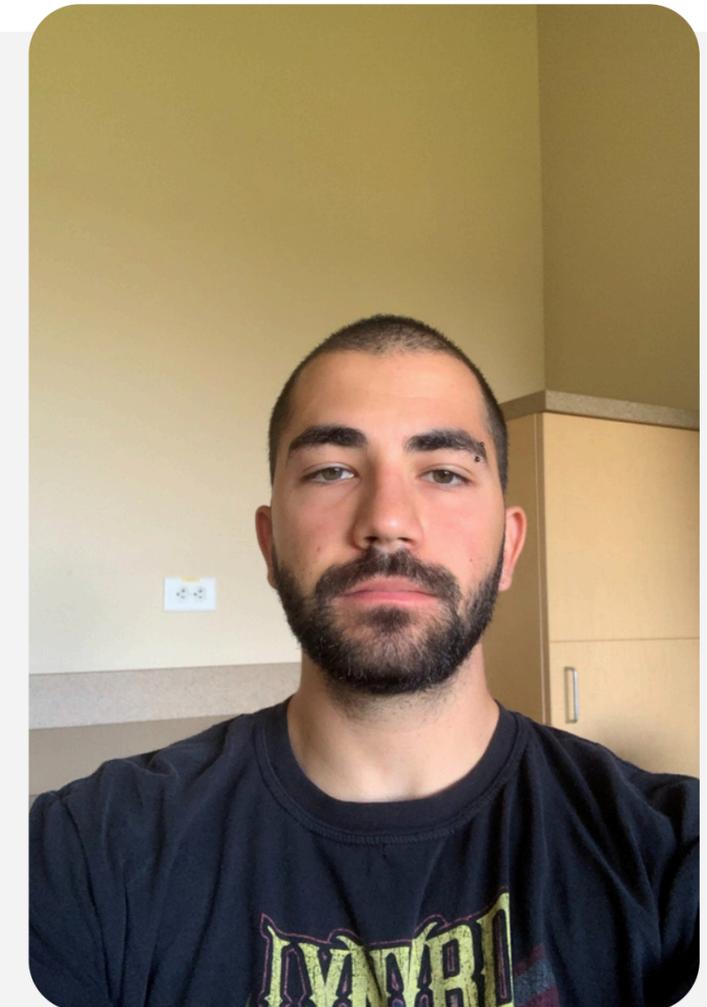
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OVERVIEW

VALUE PROPOSITION

Overview/Problem

- Teachers struggle with providing customised and consistent feedback to students.

Value Proposition

- Automating feedback with timely insights
- Consistency and fairness in evaluation

Solution Overview

- Helps teachers generate grading, feedback for students according to their input.

VALUES ENCODED

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✓ **Fairness and Consistency**
Delivering unbiased, standardized feedback to ensure consistent evaluations for all students.

✓ **Efficiency and Timeliness**
Providing immediate, actionable insights.

✓ **Transparency and Accountability**
Students have the ability to see why feedback was given the way it was given, and teachers have baseline metrics to make sure AI doesn't go awry.

VALUES ENCODED

Fairness and Consistency

- A rubric is needed before grades are administered

    ◦ Ensures fairness based on a set standard

- Teacher allowed to toggle feedback controls
    ◦ Ensures teacher's thoughts are reflected in the feedback, not bias from AI

VALUES ENCODED

Efficiency and Timeliness

- Feedback is given instantly and can be scaled across multiple students
    - Reduces time to give feedback, especially to short-answer / MCQs
- Diagnostics and assessments can be quickly generated
    - Reduces the time needed to create and generate follow-up practices following feedback

VALUES ENCODED

Transparency and Accountability

- Teachers can manually set how the AI approaches feedback, as well as adjust/edit feedback
- Input information (eg rubric) ensures feedback is accountable to students and teacher

VALUE CONFLICTS

Accountability vs. User Experience

- Detailed explanations can make feedback more accountable but may overwhelm students if they receive too much detail.

- While accountability in feedback can build trust and demonstrate thoroughness, it may also lead to information overload, especially for students who are still building foundational skills.

- Striking a balance is essential; too much detail can cause students to lose sight of the key points they need to improve on, whereas too little explanation might leave them uncertain about where they went wrong.

Automation vs. Personalization

- Feedback may lack the personal touch that teachers add to evaluations. Students might feel the feedback is impersonal or miss certain nuances that human feedback provides.

- Students may feel that an algorithm doesn't fully understand their individual learning journey or challenges. Personalized feedback allows teachers to consider a student's unique context, motivations, and progress over time, which can encourage growth and provide a sense of support.

REPRESENTATIVE TASKS

TASKS

- ✓ **Simple**

  View the progress of a 6th grade English student, James L.

  Moderate
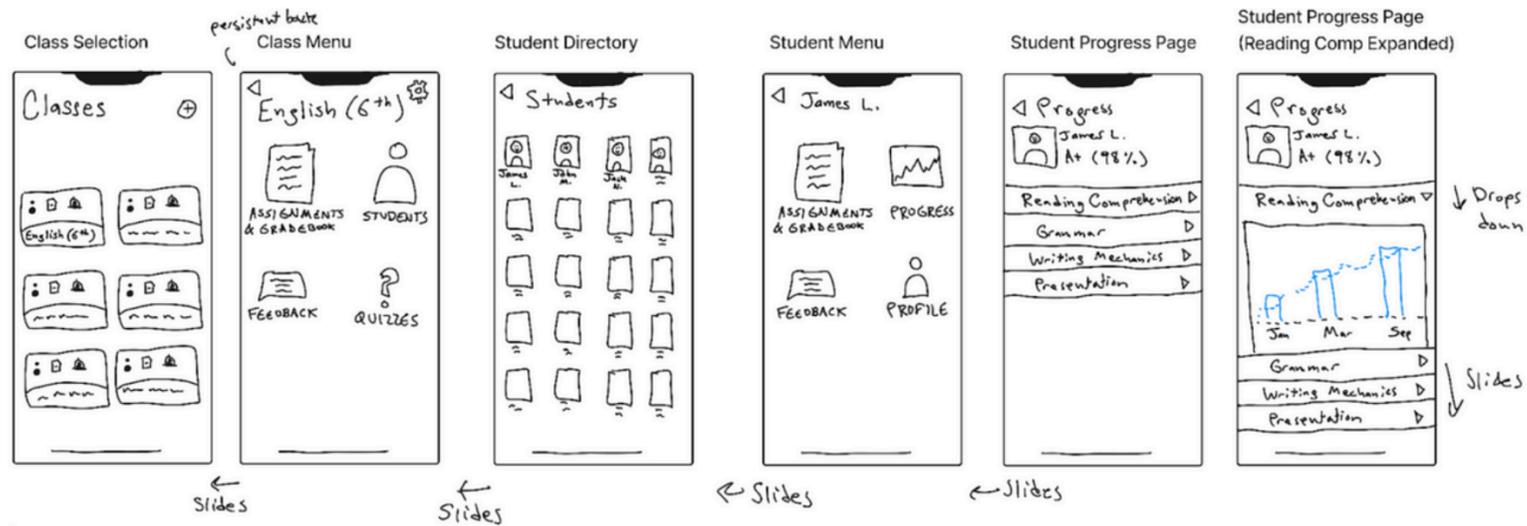- ✓ Create and submit feedback for James L.'s first assignment

  Complex
- ✓ Create a quiz with 3 sections and 20 total questions

TASK 1 (SIMPLE)

"Please view the progress of a 6th grade English student, James L., in Reading Comprehension over time."
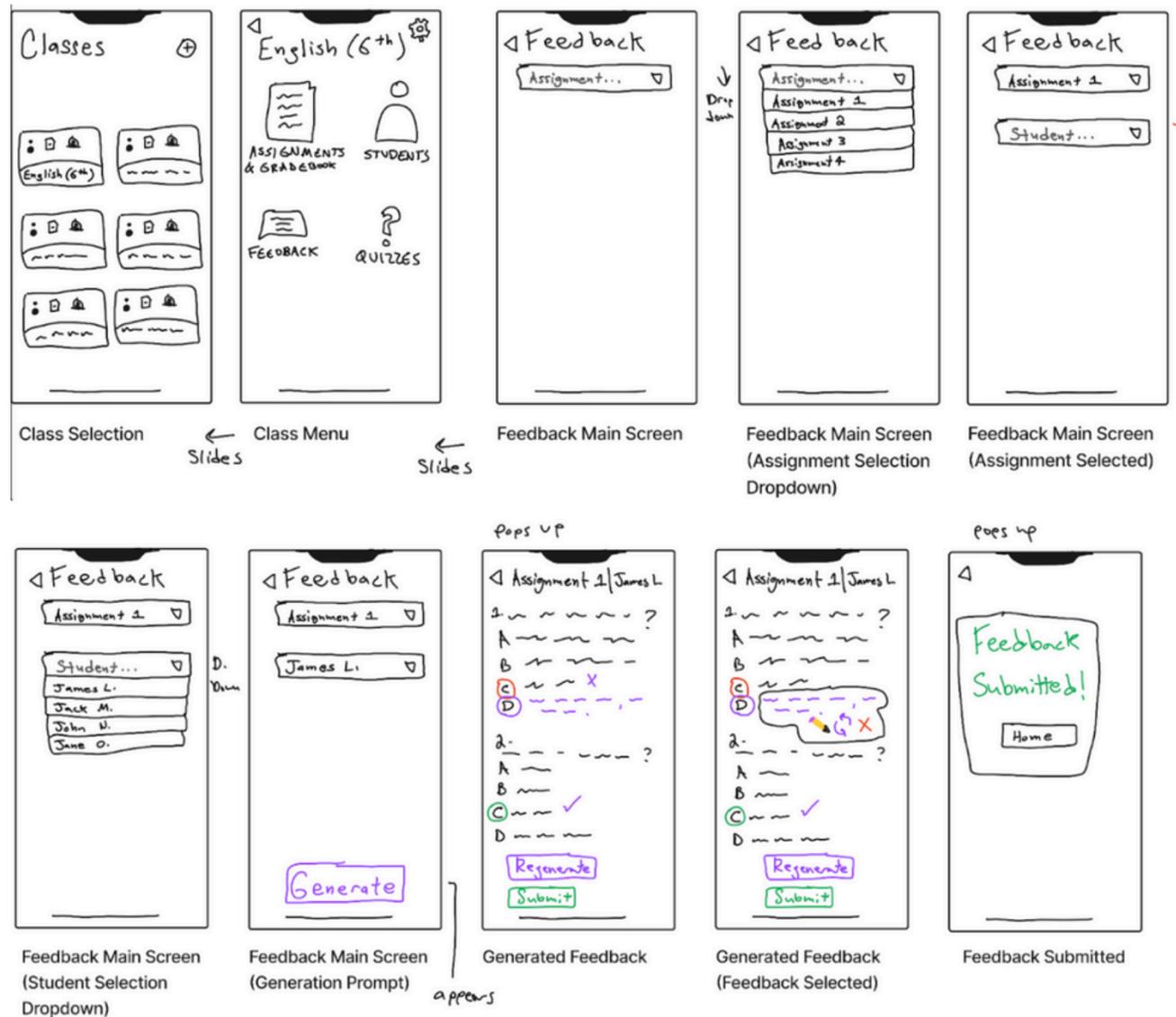
Lo-Fi

Changes

- Added an introductory screen
- Added colors for classes to ensure easy visibility
- Added a settings button to ensure the app was easy to fix if broken
- Simplified information shown per student

TASK 2 (MODERATE)

"Please create and submit feedback on James L.'s work on Assignment 1"
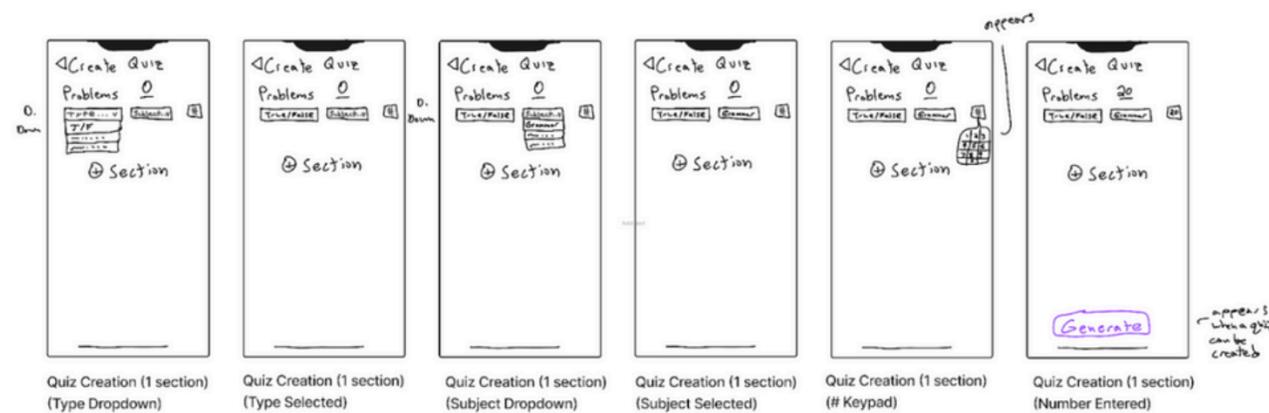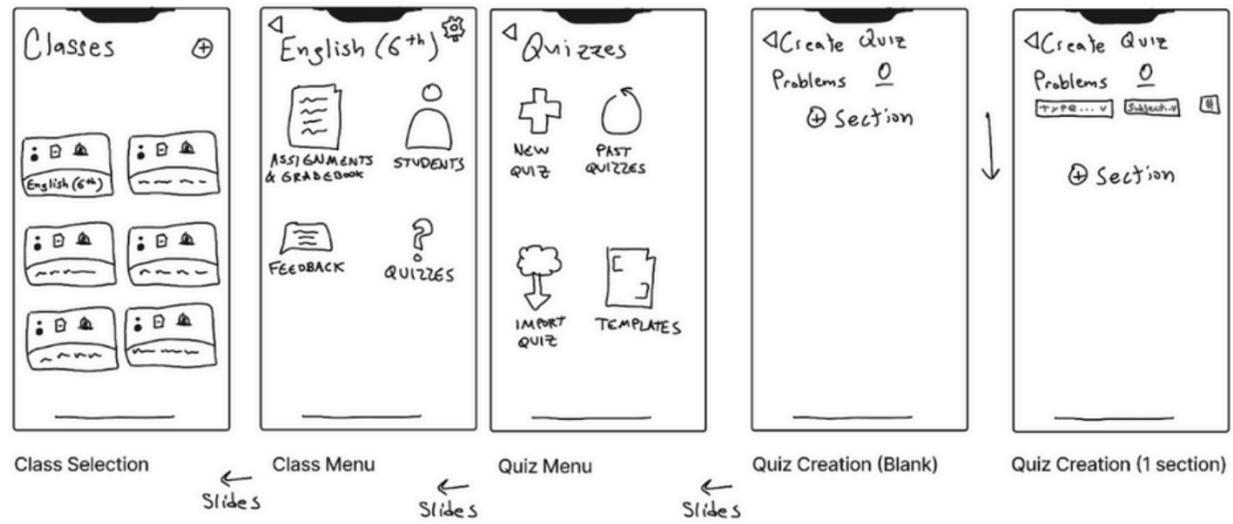
Lo-Fi

Changes

- Redid generate button to have more intuitive colors and buttons
- Added information buttons to make sure teachers know how to use this workflow
- Used white space by making certain elements bigger and adding clarifications to confusing elements per feedback recieved

TASK 3 (COMPLEX)

"Please create a quiz with three sections, which each test a different skill area, and totaling 20 questions"

Lo-Fi

Class Selection   Class Menu   Quiz Menu   Quiz Creation (Blank)   Quiz Creation (1 section)

← Slides   ← Slides   ← Slides

Quiz Creation (1 section) (Type Dropdown)   Quiz Creation (1 section) (Type Selected)   Quiz Creation (1 section) (Subject Dropdown)   Quiz Creation (1 section) (Subject Selected)   Quiz Creation (1 section) (# Keypad)   Quiz Creation (1 section) (Number Entered)

Changes

- Added onboarding and more info so that teachers know how to use the diagnostic generation tool
- Added a specific diagnostics button on a main page to remove confusion on where to find diagnostics
- Optimized buttons on diagnostic generation page to ensure a clean and usable look

USABILITY GOALS

KEY GOALS

✓ **Ease of Use**
The tool should be very easy for teachers to use and not require confusion when navigating the UI

✓ **Efficiency**
The tool should be streamlined and deliver results efficiently and in a timely manner when exploring the UI

PROGRESS & CHANGES

✓ **Ease of Use**
Better color palettes make the tool easier on the eyes and more descriptive buttons and information signs allow for a simpler
✓ navigation experience. Changes could include a smoother onboarding than currently available.
Efficiency
The tool requires less clicks to use due to fast transitions and well placed buttons in terms of regeneration/generation, making the experience fast for users. Changes could include evenmore options to regenerate for simplicity.

REVISED INTERFACE DESIGN
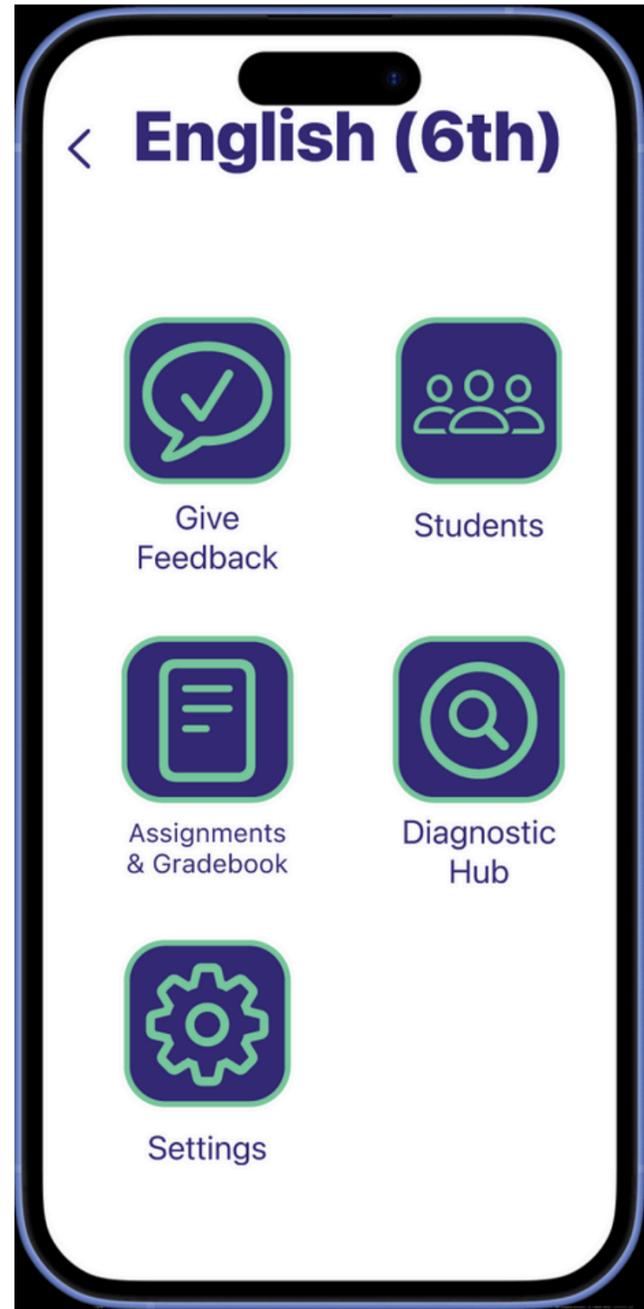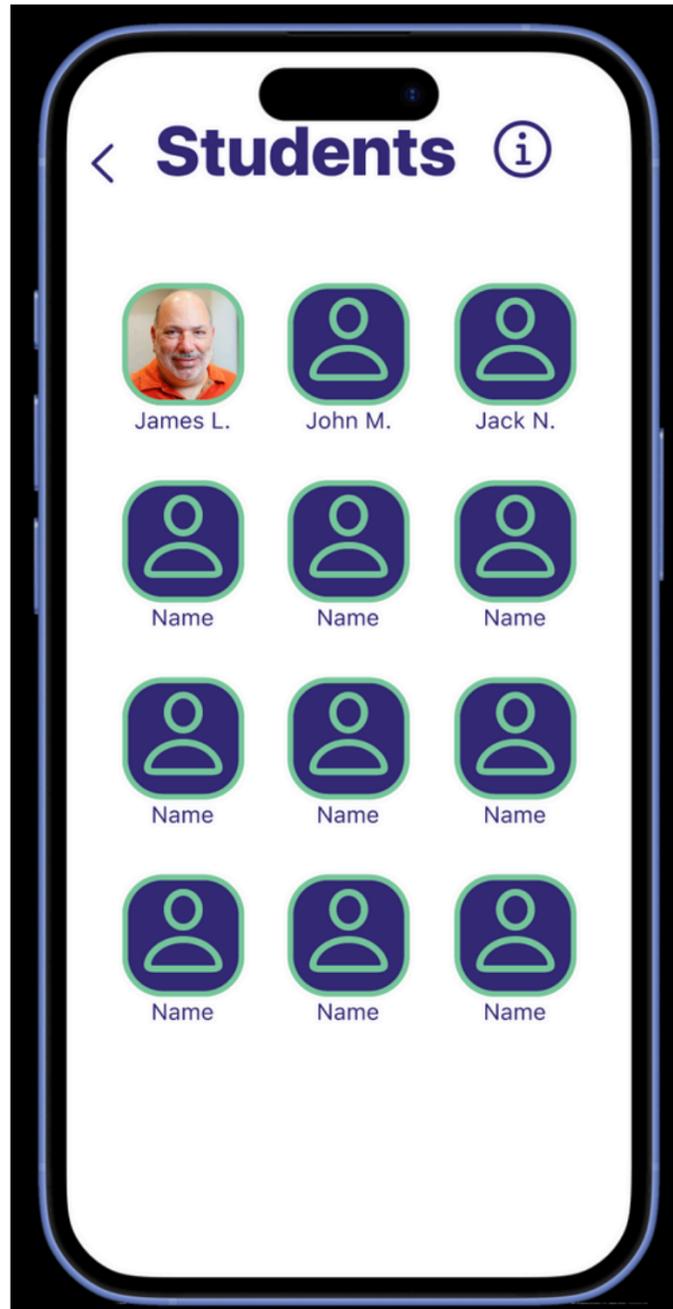
UI CHANGE 1: ONBOARDING
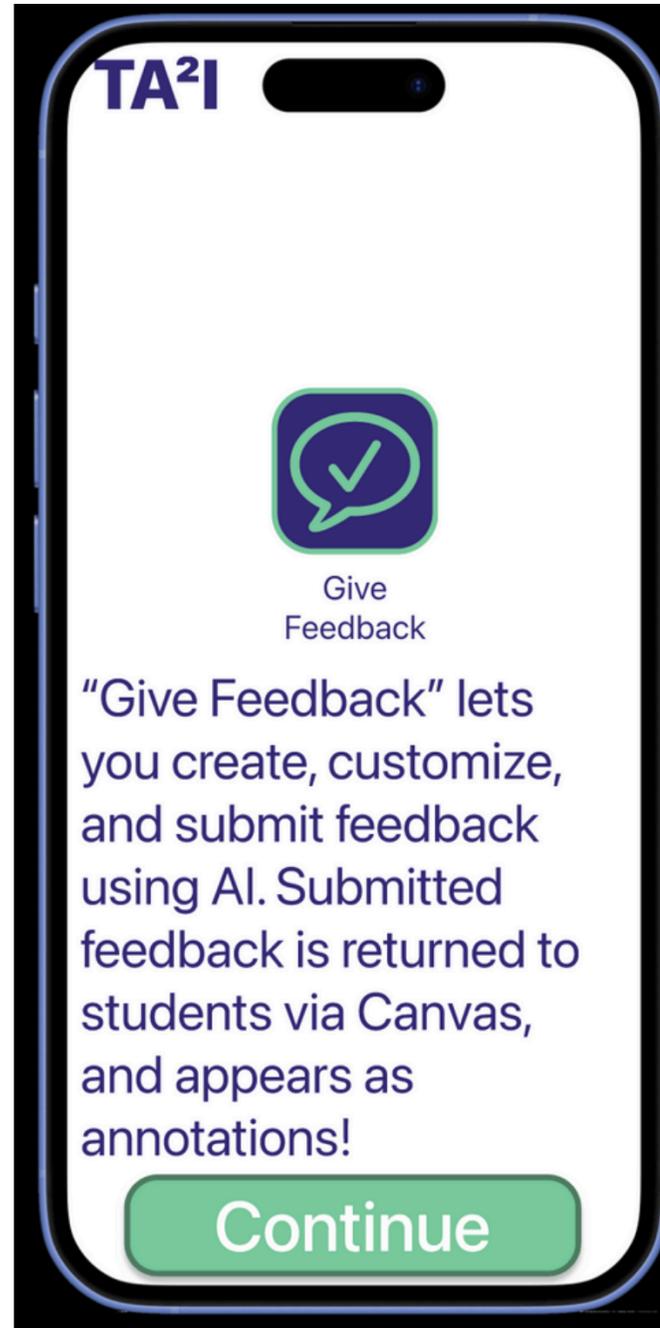
Changes

- Before we did not have onboarding at all
- Now onboarding does a variety of functions such as:
  - Explaining the basics of our app and what it does
  - Explains how giving feedback works in our app
  - Explains student and grade book tabs, alongside other key buttons/features
 - Explains how to navigate settings

UI CHANGE 2: COLOR PALETTE

Changes

- Before we did not have much of a color palette--largely using black and white
- Now we have switched the entire app to a green and purple color scheme that is more appealing to the eye
- We used Gestalt principles to create contrast and ensure that our icons are clearly visible

UI CHANGE 3: FEEDBACK OVERLAY
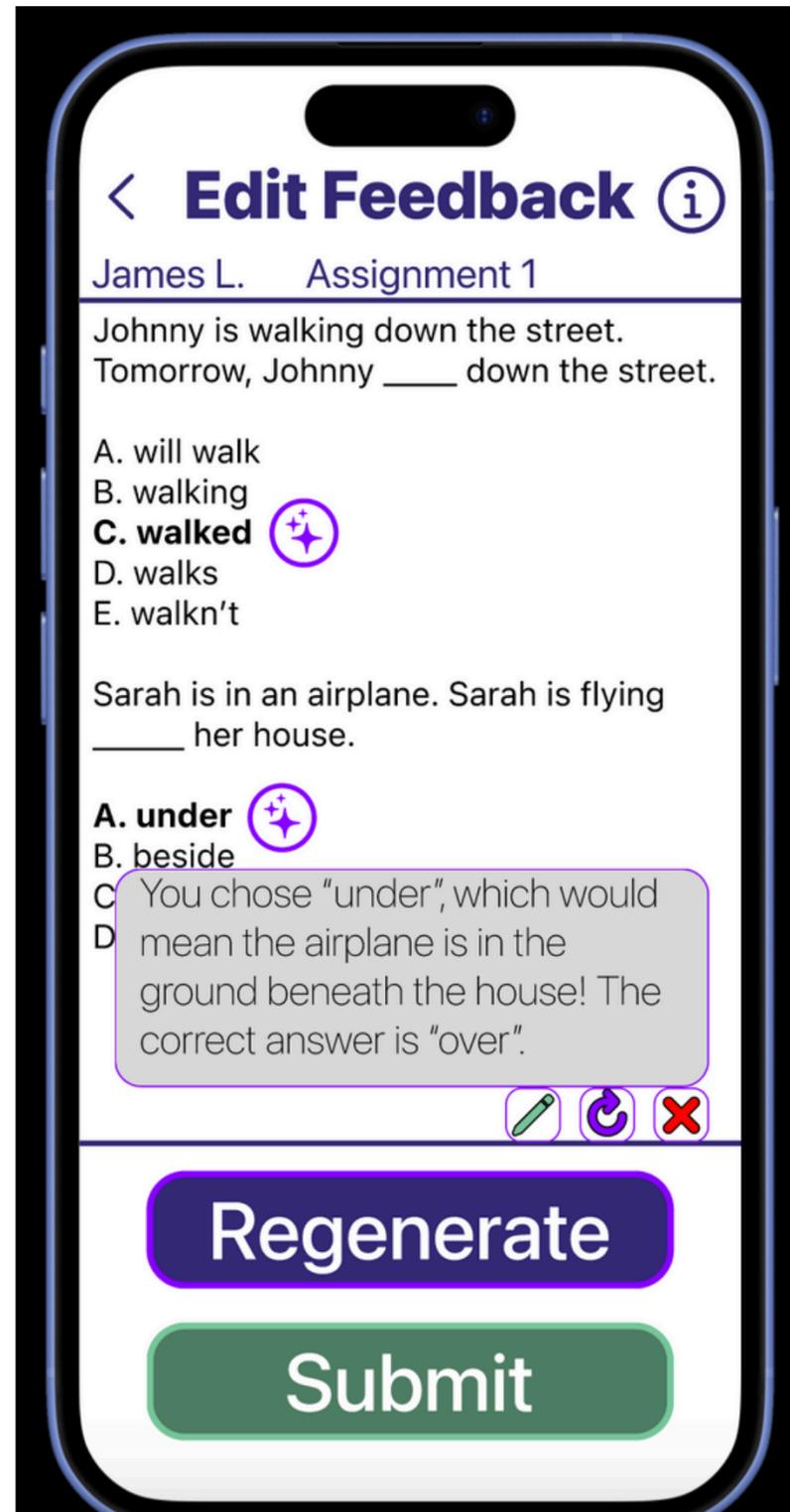
Changes

- Before we did not have significant feedback given for diagnostics and other assessments, and there weren't as many options for teachers
- Now more detailed feedback is given and the icons are adjusted so that its clear when an answer is correct or incorrect

MED-FI PROTOTYPE
TASK FLOWS

TASK 1 (SIMPLE)

"Please view the progress of a 6th grade English student, James L., in Reading Comprehension over time."
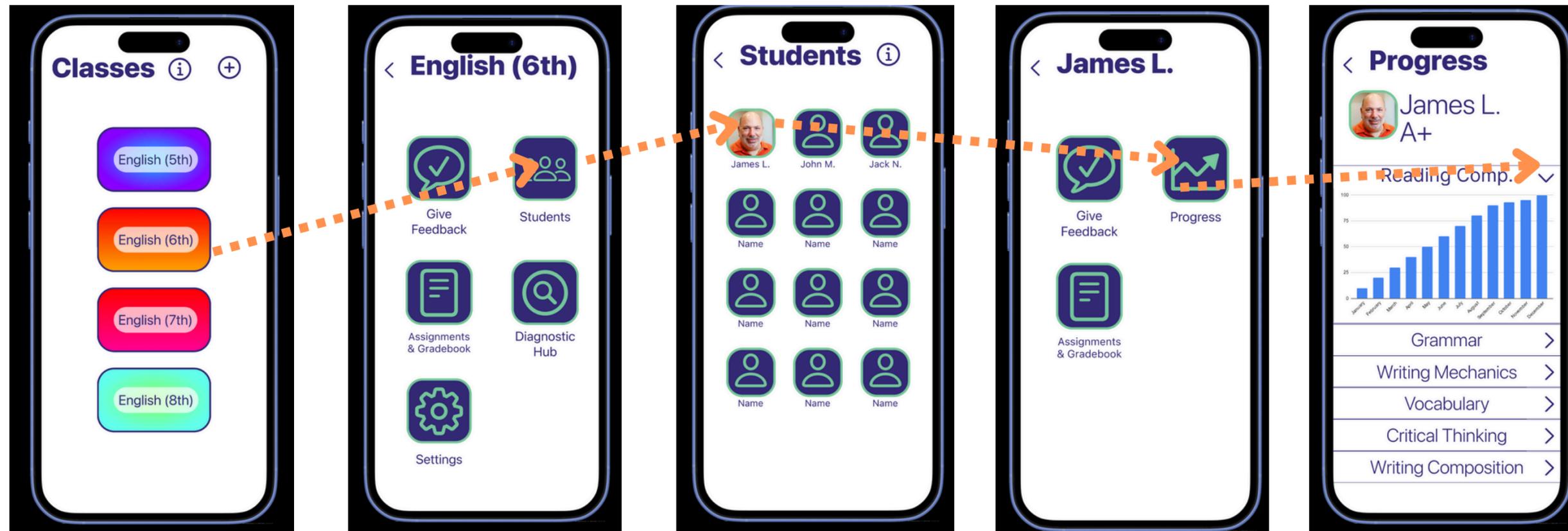
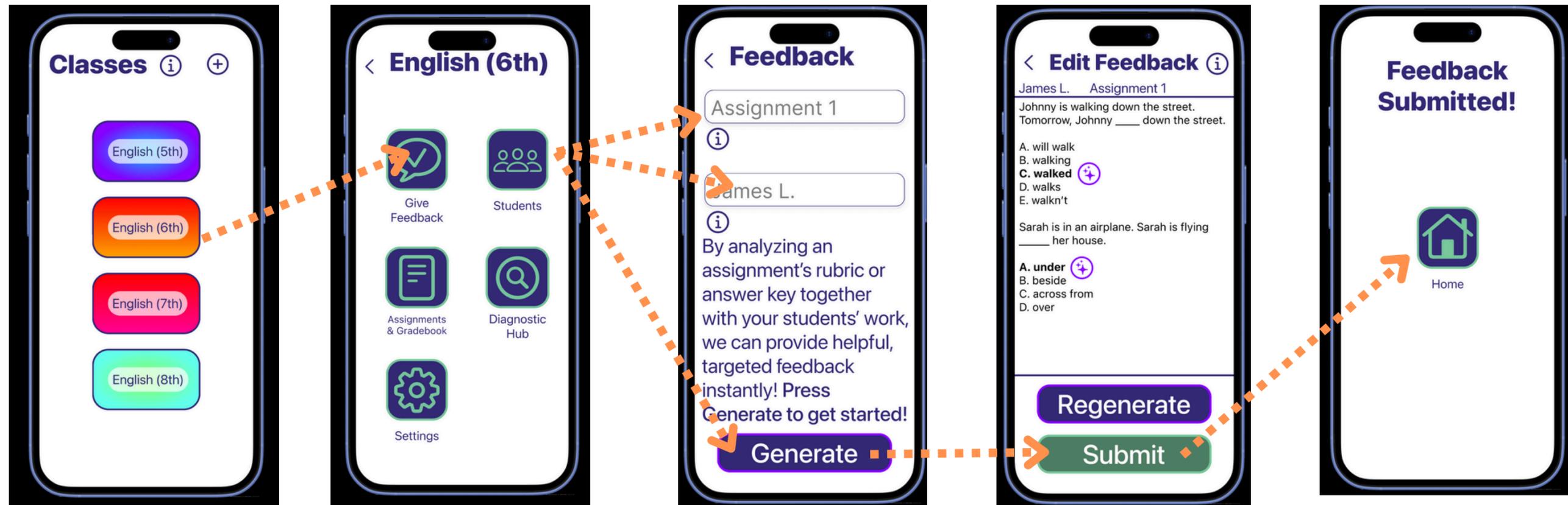| Click on class button to go to class page | Click on students button to go to students page | Click on the specific student to view their page | Click on progress to see student progress across subjects | Click on subject dropdown to see progress |

TASK 2 (MODERATE)

"Please create and submit feedback on James L.'s work on Assignment 1"

Click on class button to go to class page

Click on give feedback button to go to feedback page

Set assignment and student, then generate
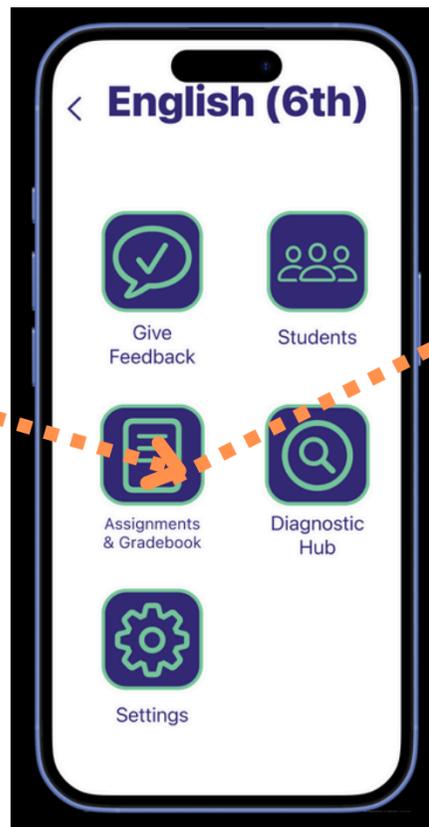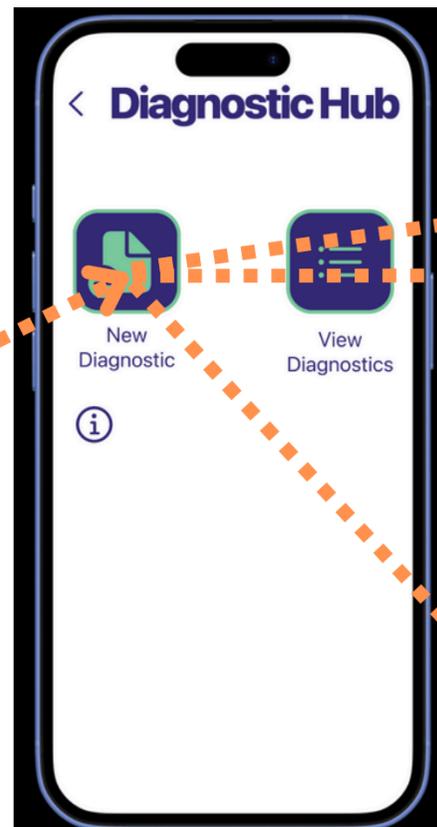
Submit feedback

Submission page

TASK 3 (COMPLEX)

"Please create a quiz with three sections, which each test a different skill area, and totaling 20 questions"
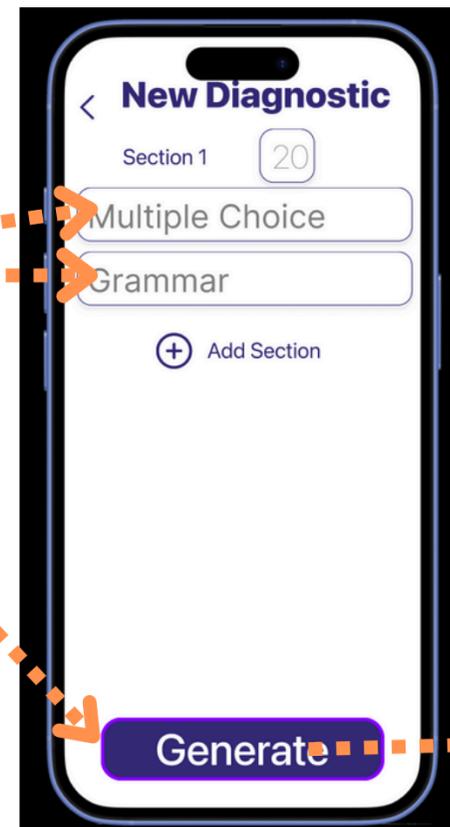

Classes ⓘ ⊕

English (5th)

English (6th)
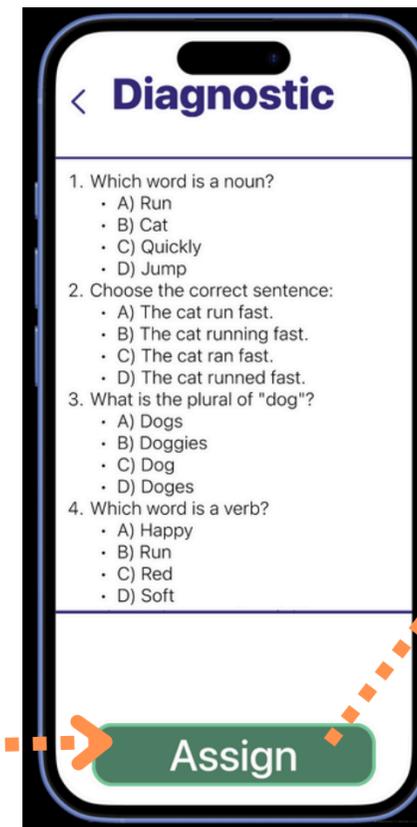
English (7th)

English (8th)

Click on class button to go to class page

< **English (6th)**

✓ Give Feedback

👥 Students

📋 Assignments & Gradebook

🔍 Diagnostic Hub

⚙ Settings

Click on assignments for diagnostic

< **Diagnostic Hub**

📄 New Diagnostic

☰ View Diagnostics

ⓘ

Click on new diagnostic

< **New Diagnostic**

Section 1   20

Multiple Choice

Grammar

⊕ Add Section

Generate

Make the diagnostic per specifications

< **Diagnostic**

1. Which word is a noun?
   - A) Run
   - B) Cat
   - C) Quickly
   - D) Jump
2. Choose the correct sentence:
   - A) The cat run fast.
   - B) The cat running fast.
   - C) The cat ran fast.
   - D) The cat runned fast.
3. What is the plural of "dog"?
   - A) Dogs
   - B) Doggies
   - C) Dog
   - D) Doges
4. Which word is a verb?
   - A) Happy
   - B) Run
   - C) Red
   - D) Soft

Assign

Review and assign

< **Post to Canvas?**

Post

Post to canvas

Diagnostic Assigned!

🏠 Home
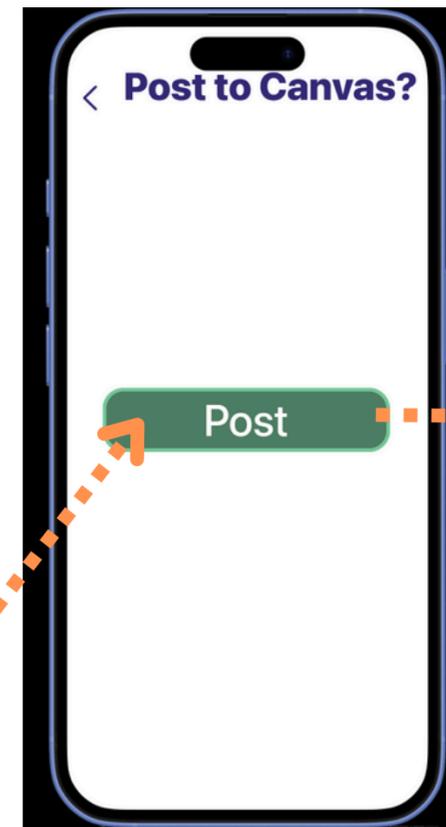
Success

PROTOTYPE IMPLEMENTATION

PROTOTYPE IMPLEMENTATION

a. Tools: Figma.

Pros:
- Powerful and versatile with numerous options and adjustable parameters.
- Facilitates rapid prototyping and easy sharing of prototypes.
- Accessible learning curve, making it user-friendly for beginners.

Cons:
- Some unintuitive behaviors may lead to frustration.
- Lacks mobile editing capabilities, limiting flexibility.

b. Limitations (What was left out):
- Lacks support for real-time interactions, such as typing, sorting lists, resizing elements, or pinch-to-zoom.
- Interactive elements were left out—such as creating new classes, using a color picker, adding dynamic sections (e.g., in a diagnostic), or changing settings—cannot be simulated within the prototype.
- These limitations mean that any complex interactivity must be excluded, restricting the depth of user experience testing.
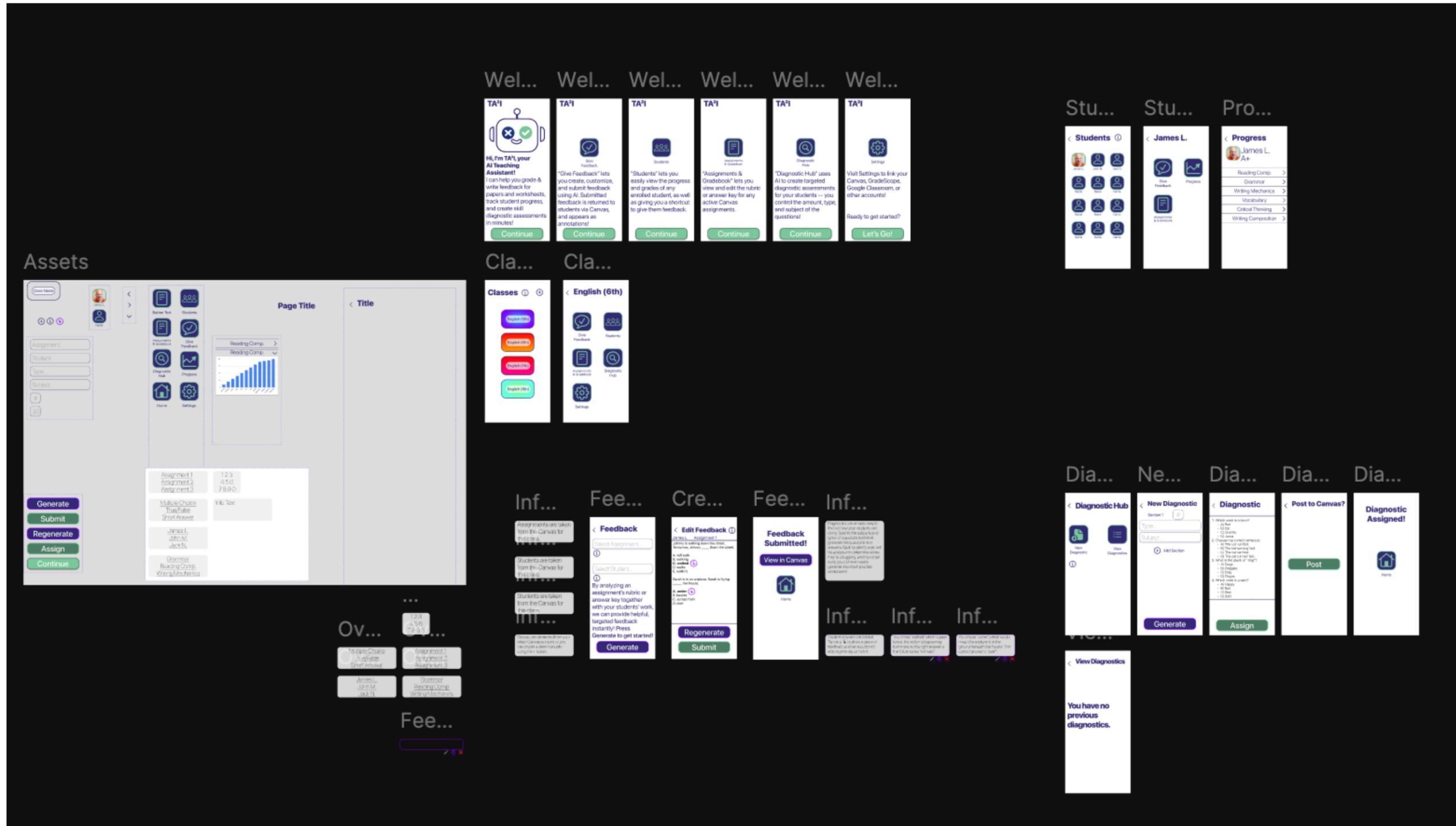
c. Hard-coded and Wizard-of-Oz:
- All of the "AI" features (generating feedback, diagnostics, analyzing student work) are hardcoded.
- All of the "Integration" features (scraping assignments, students) are hardcoded as well.

APPENDIX

REVISED LO-FI SKETCHES
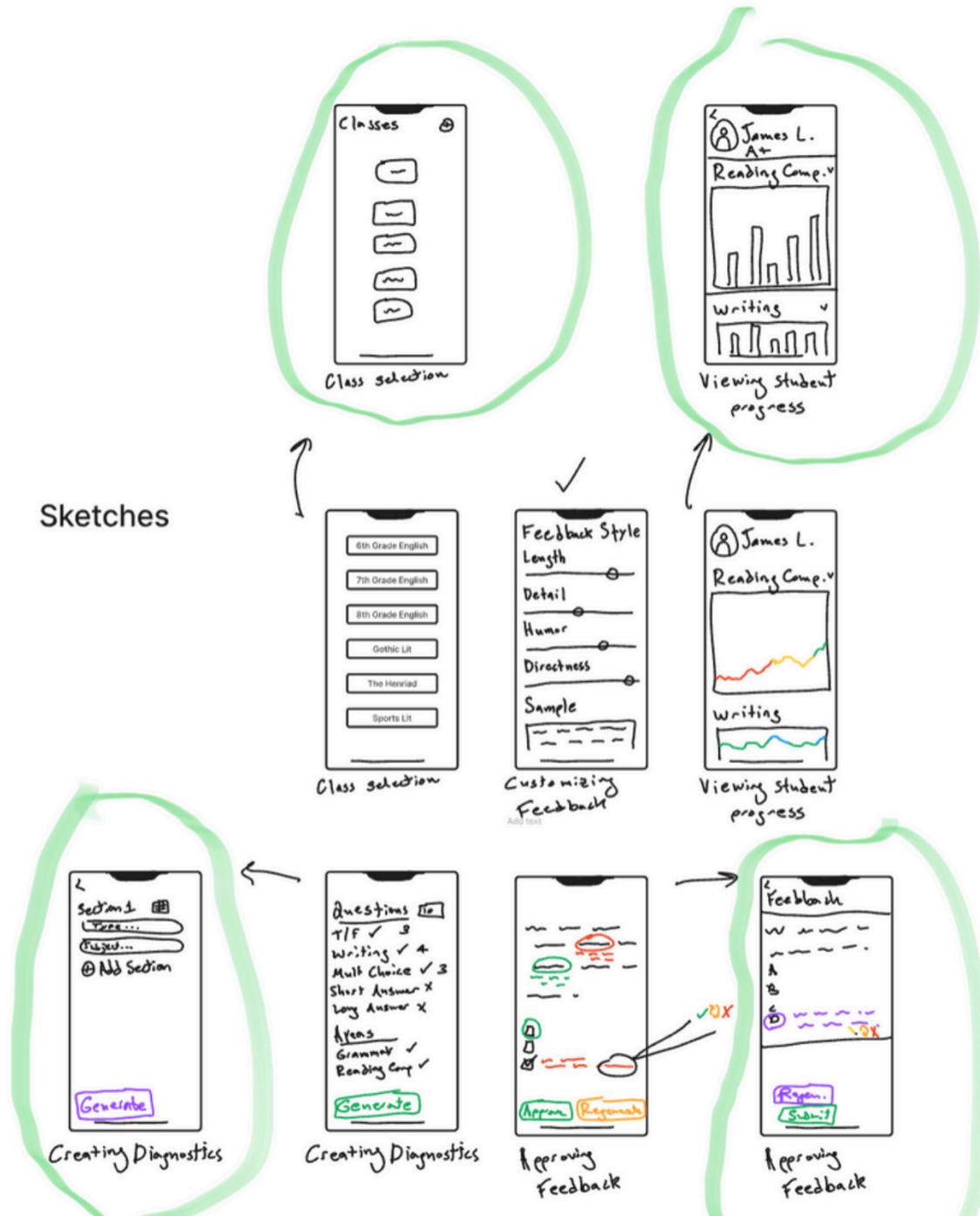
OVERALL PROTOTYPE

FIGMA

THANK YOU