



LEARN. SOLVE. EMPOWER



The CoCode Team



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Mission Statement: Cocode exists to provide a welcoming and collaborative space that empowers students in postsecondary CS classes to learn and share their knowledge with their peers.

Suggested UI Changes From A5

- **Specify and add features to whiteboard space:** chat, coding environment, personal work space, etc.
- Provide **resources from lectures** or textbooks for students to browse before they seek help
- Make **signing up to teach** a problem more intuitive
- **Collaboration vs. teaching** functions: how do they overlap and differentiated
- **Reorder the tabs** on the top of each page
- **save/upload the progress** on the whiteboard
- **Show the progress** of each discussion room
- **My stuff** dashboard/portfolio



Task 1: Learn from Peers

“You are taking an introductory computer science class on data structures. It is later in the evening, and you weren’t able to make it to lecture or office hours earlier in the day, which has resulted in you **being very stuck getting started on problem four**. You go onto this platform **seeking a conceptual explanation** on breath for search algorithms. Where do you go?”





Task 1: Learn from Peers



Changes We Made:

- Offer students the option to review course material
 - Lectures, Section Handouts, Assignments
- The ability to sign up for problems that you want to learn
 - Can be notified when a peer teacher is available for a given problem
- Updated the whiteboard to be a more collaborative space with options for both coding as well as a white board side-by-side. Users can also share screen. When finished working, students can save what they have created on the collaborative space.

Task 1: Learn from Peers

The image illustrates the 'Task 1: Learn from Peers' workflow in the COCODE platform. It consists of several interconnected screenshots:

- Course Overview:** A screenshot of the 'Review Course Materials' page, showing a list of lectures and assignments. A blue arrow points from this page to the lesson page.
- Lesson Page:** A screenshot of a lesson page titled 'This Week's Highlight'. It features a 'This Week's Highlight' section with a 'Watch' button, followed by 'Concept 1' and 'Concept 2' sections, each with a right-pointing arrow.
- Peer Tutor Selection:** A screenshot showing two peer tutor profiles: 'Thomas Courtenay' and 'Tara O'Flaherty'. Blue arrows point from this selection to the 'Problems with peer tutors available' section.
- Problems with peer tutors available:** A screenshot showing a list of problems for 'Concept 1'. Each problem card has a '+' sign in the bottom right corner. A blue arrow points from this section to the detailed problem-solving interface.
- Problem Solving:** A screenshot of a detailed problem-solving interface. It shows a list of problems for 'Concept 1' with a '+' sign in the bottom right corner. A blue arrow points from this section to the detailed problem-solving interface.
- Detailed Problem Solving:** A screenshot of a detailed problem-solving interface. It shows a list of problems for 'Concept 1' with a '+' sign in the bottom right corner. A blue arrow points from this section to the detailed problem-solving interface.
- Peer Tutor Profile:** A screenshot of a peer tutor's profile, showing their name, a 'Help' button, and a 'Teach' button. A blue arrow points from this profile to the detailed problem-solving interface.

Task 2: Collaborate

“You are preparing for a final exam worth a big portion of your grade, and you go onto our platform **seeking discussion and practice** with concepts. There are a few clarifications you want to receive about a data structure used in problem four, but you also feel like you **have some understanding to share**. Where do you go?”





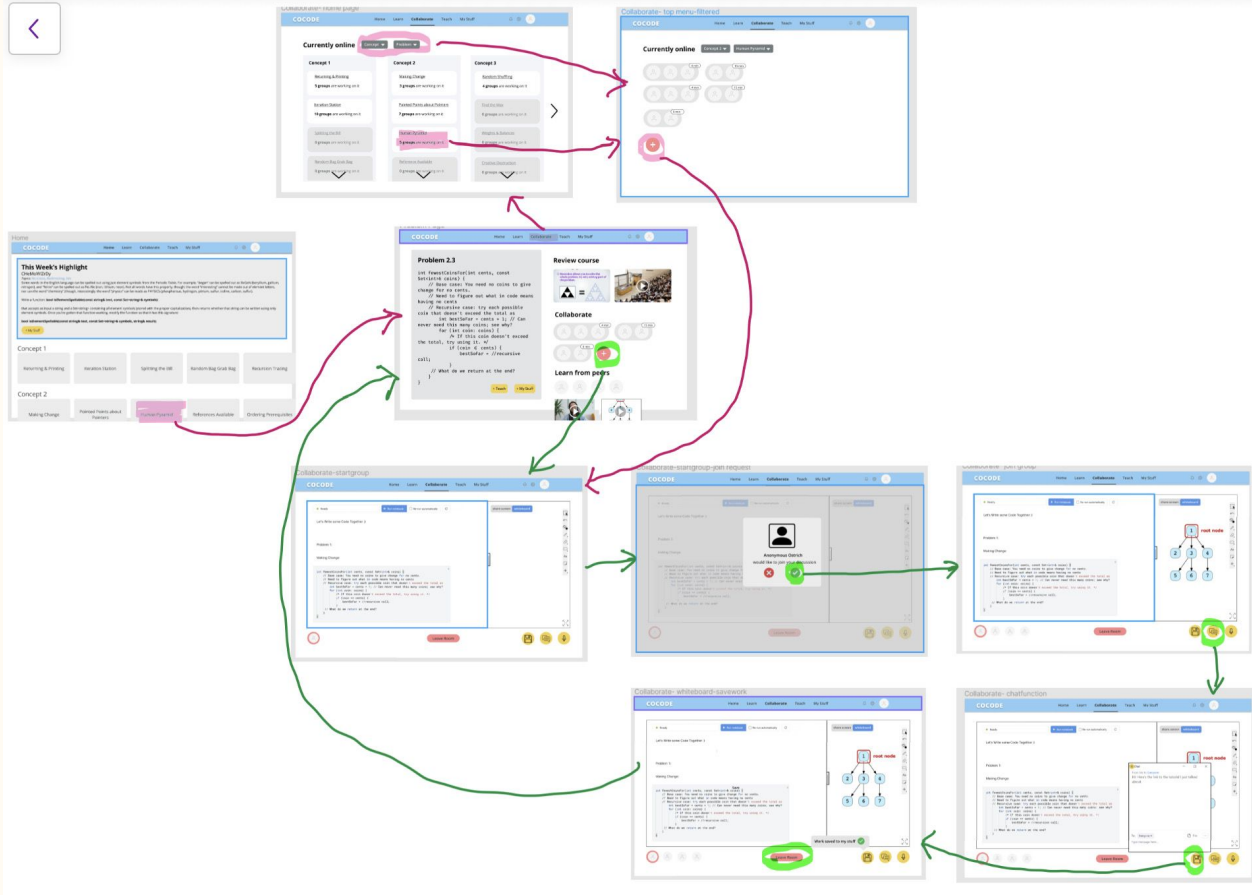
Task 2: Collaborate



Changes We Made:

- This task flow stayed mostly consistent with last week's low-fi prototype.
- One change we made was offering the option to review lecture material related to a given problem from the problem page
- We also changed the flow of the main collaborate page. Rather than showing all possible problems, there is a drop-down at the top to move between different concepts

Task 2: Collaborate



Task 3: Teach a Problem

“After studying for your exam for many hours and **succeeding** in practicing problem 4 on our platform, you feel much stronger about your understanding of a tough concept. You decide you want to **test your mastery and share how you came to think about the problem** with others. What do you do?”





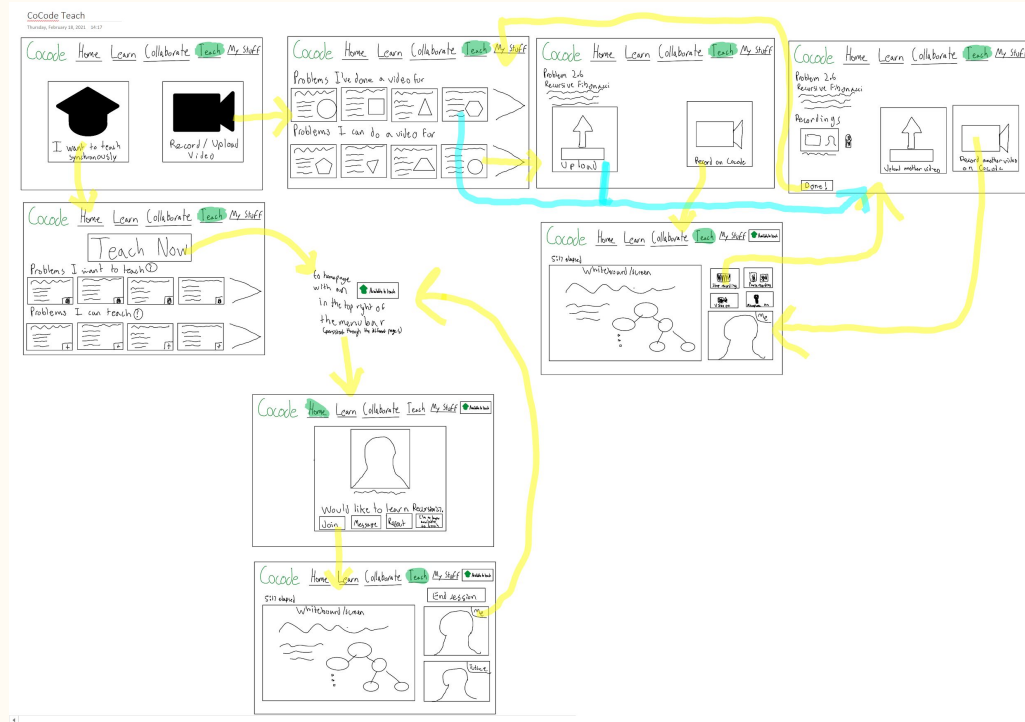
Task 3: Teach a Problem



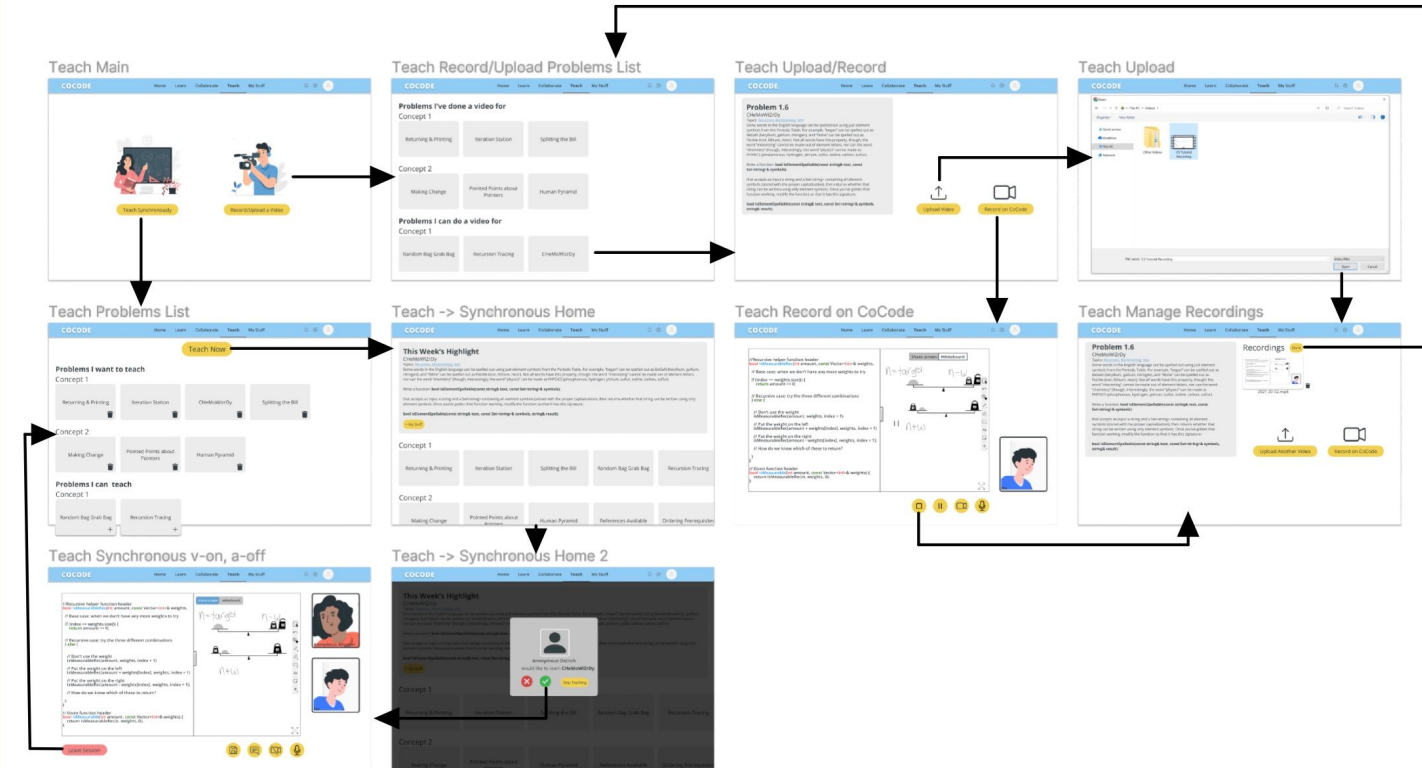
Changes We Made:

- Flow for signing up to teach
 - Now you can sign up for problems that you are excited to teach and be notified when there is a student who wants to learn that topic
 - Once this notification arises, one can join on a call right then, message them, or decline
- If you do not want to teach live, we provided the option to record using CoCode software and whiteboard space rather than your own computer software.

Task 3: Teach a Problem

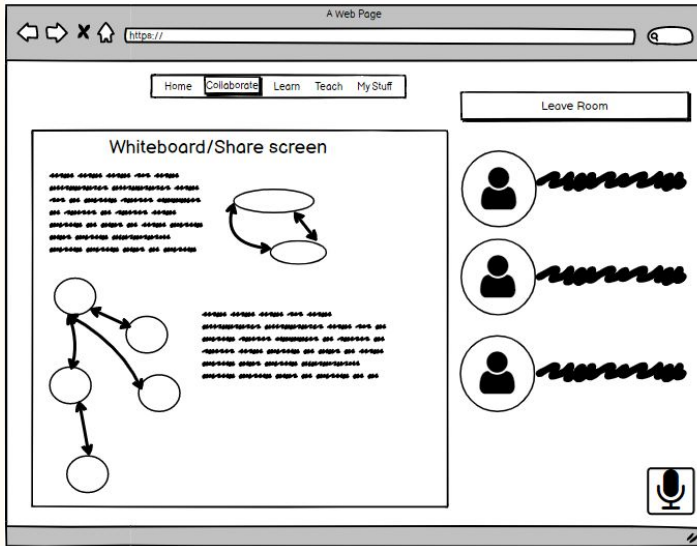


Task 3: Teach a Problem

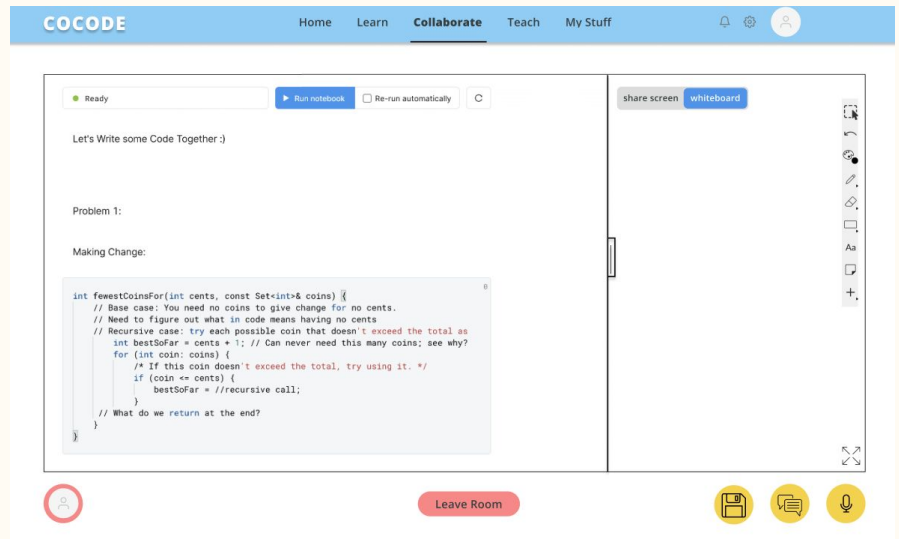


Revised: Whiteboard

Before

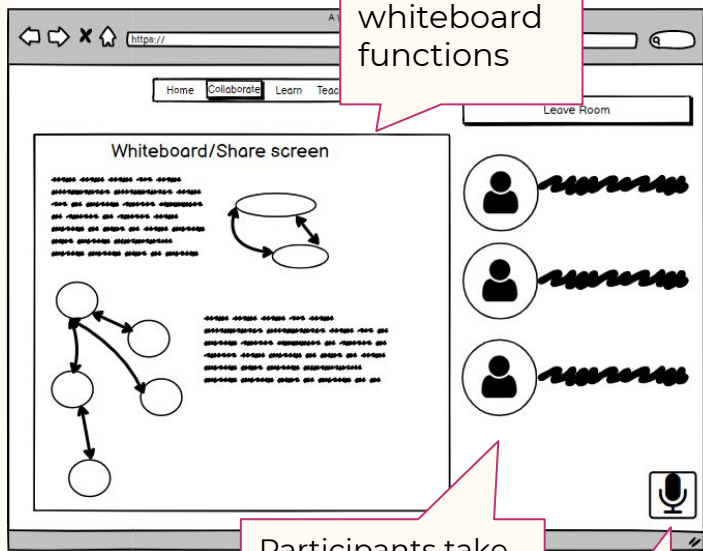


After



Revised: Whiteboard

Before

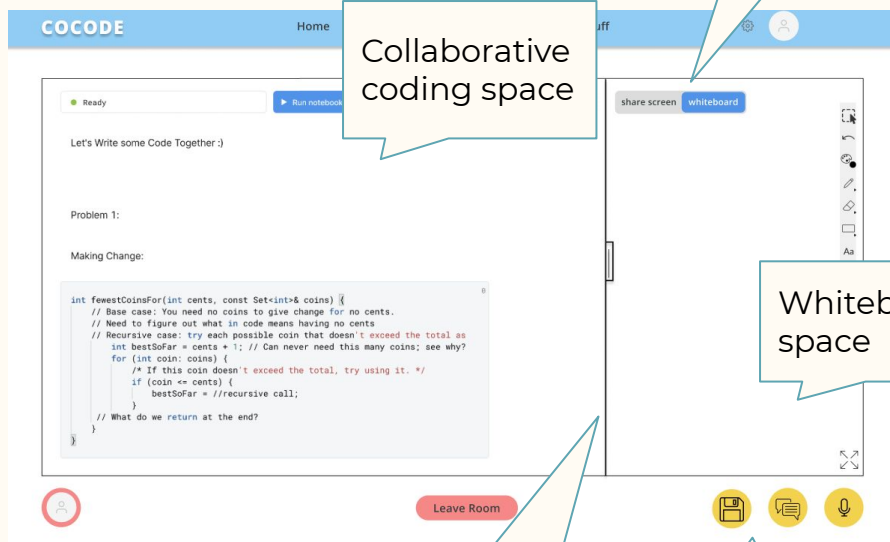


Unspecified whiteboard functions

Participants take up much space

Simple audio setting

After



Collaborative coding space

Switch between whiteboard & share screen

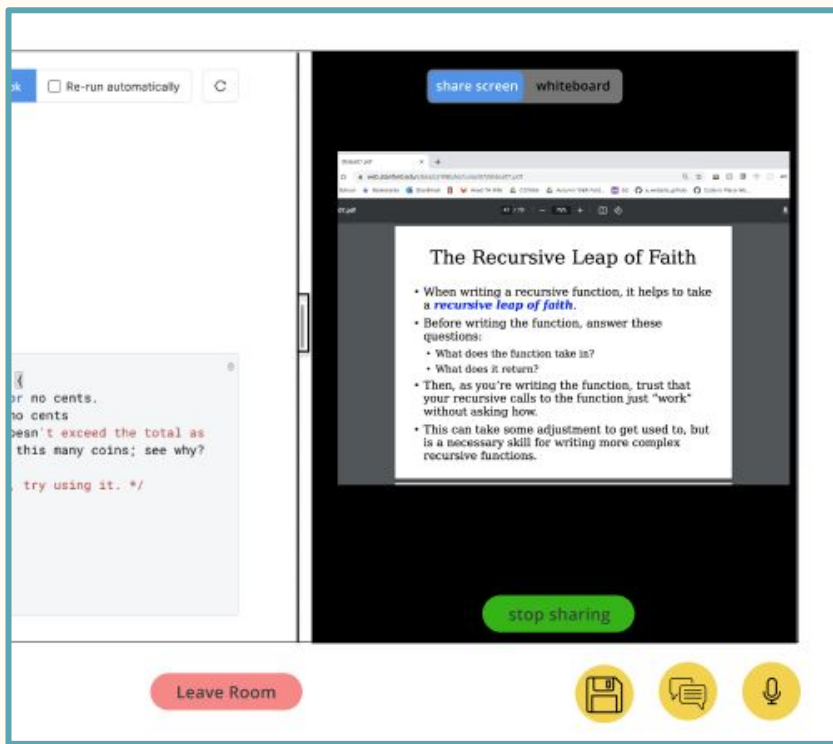
Whiteboard space

Moveable border

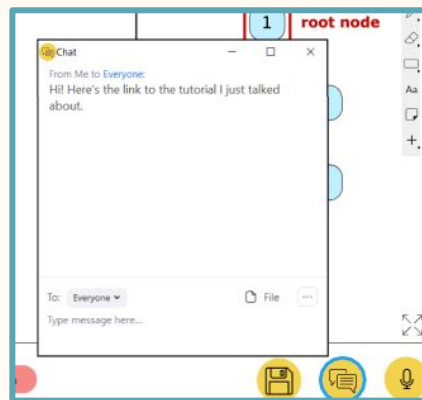
Save progress, chat, audio adjustment buttons

Revised: Whiteboard

Switch to share screen: one-click fast demo



Chat: file/link/chat exchange



Save work: seamlessly fit in the assignment workflow






Revised: Whiteboard

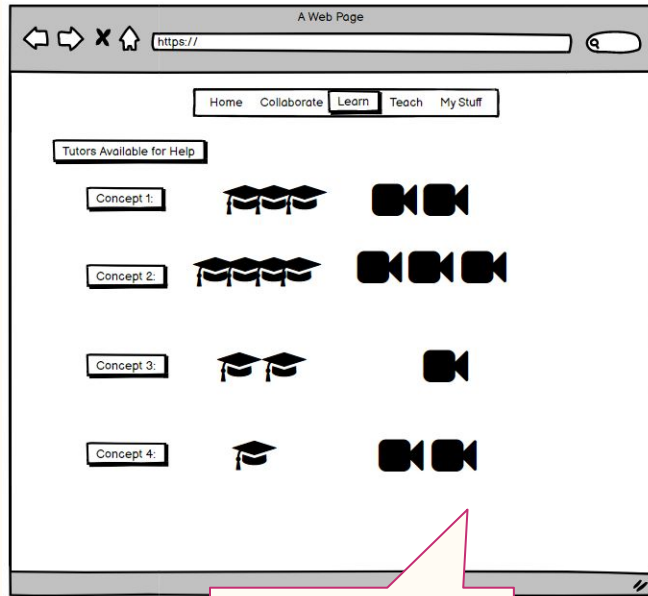
Rationale:

The additional features were requested by all of our testers. Enabling side-by-side code editing and whiteboarding/screen sharing capabilities is essential to providing a high quality collaboration experience, which is the core of our product.



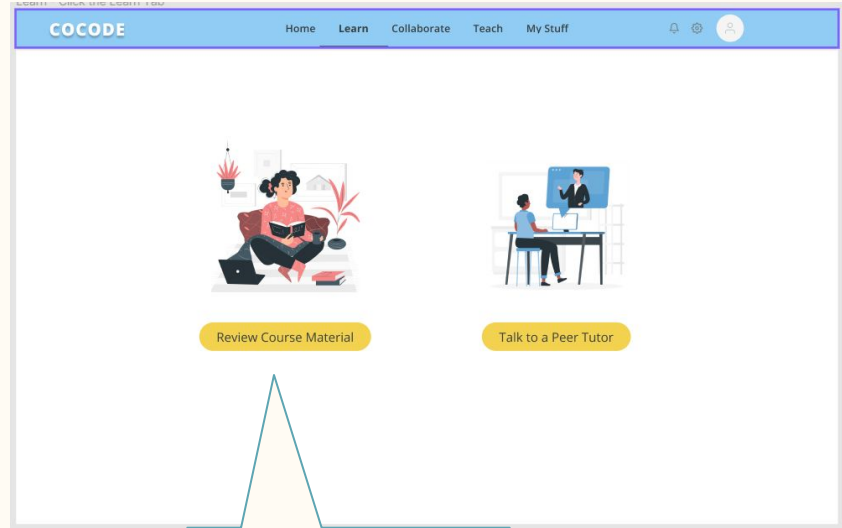
Revised: Course Material Review

Before



Peer tutor is the only option

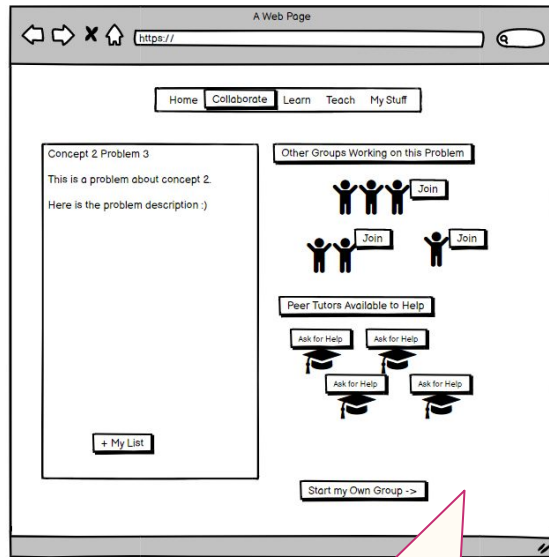
After



Can review course material before getting help

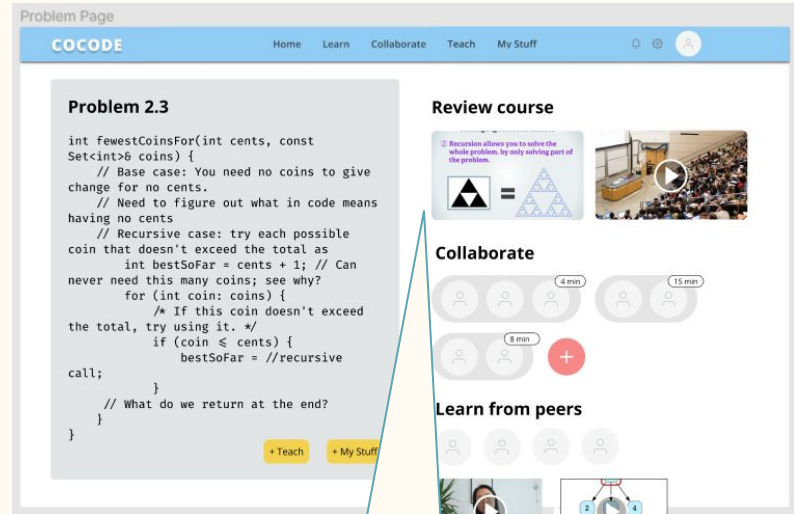
Revised: Course Material Review

Before



Collaborate or learn from peers

After



Can review corresponding course material

Revised: Course Material Review

Learn-Review Course Materials

COCODE Home Learn Collaborate Teach My Stuff

Review Course Materials

Lectures

- [Lecture 1: Intro & Functions](#)
- [Lecture 2: Strings](#)
- [Lecture 3: Collections Part I](#)
- [Lecture 4: Collections Part II](#)
- [Lecture 5: Collections Part III](#)
- [Lecture 6: Recursion Part I](#)
- [Lecture 7: Recursion Part II](#)
- [Lecture 8: Recursion Part III](#)
- [Lecture 9: Recursion Part IV](#)
- [Lecture 10: Recursion Part V](#)
- [Lecture 11: Big-O Notation](#)
- [Lecture 12: Searching](#)
- [Lecture 13: Sorting](#)

Section Handouts

- [Section Handout 1](#)
- [Section Handout 2](#)
- [Section Handout 3](#)
- [Section Handout 4](#)
- [Section Handout 5](#)

Assignments

- [Assignment 1: Welcome to C++](#)
- [Assignment 2: Fun with Collections](#)
- [Assignment 3: Recursion I](#)
- [Assignment 4: Recursive Backtracking](#)
- [Assignment 5: Big-O](#)

COCODE Home Learn Collaborate Teach My Stuff

Nick P. CS 106B

My Courses

- CS 109
- CS 106B**
- CS 110

+

Course Resources

- [Course Website](#)
- [Lecture Slides](#)
- [Course Video](#)
- [Turn In Assignment](#)

Saved Problems

Work in Progress

Solved Problems


Aggregated course material links under “learn” and “my stuff”



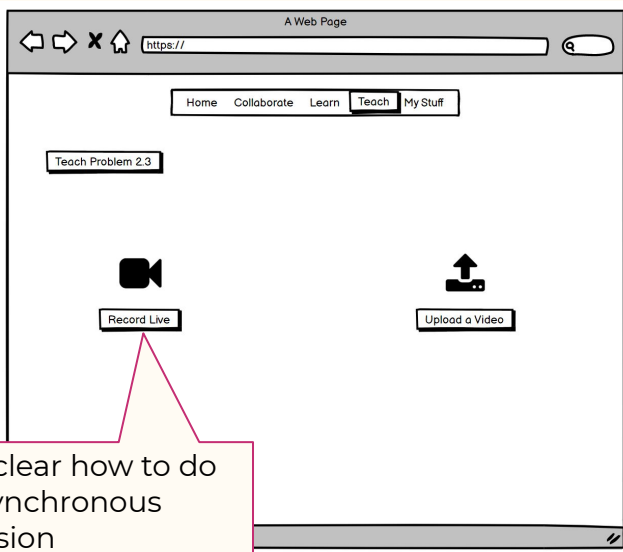
Revised: Course Material Review

Rationale:

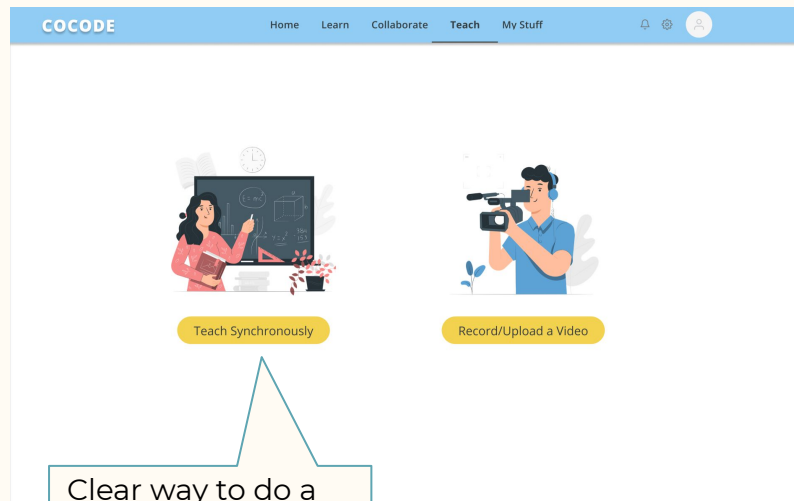
On the learn tab, we added the functionality to choose to review lecture materials or learn from a peer tutor. We heard in our interviews that students want to try to clarify any misunderstandings on their own before they go to others for help. We also added this functionality when looking at a problem on the collaborate space.



Revised: Teaching



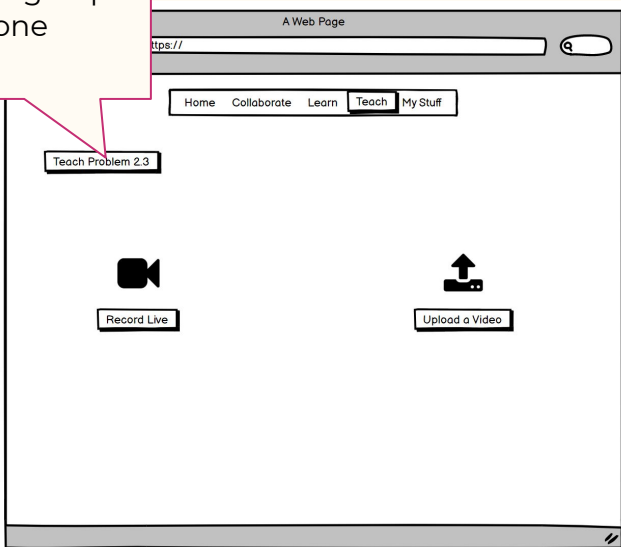
Unclear how to do a synchronous session



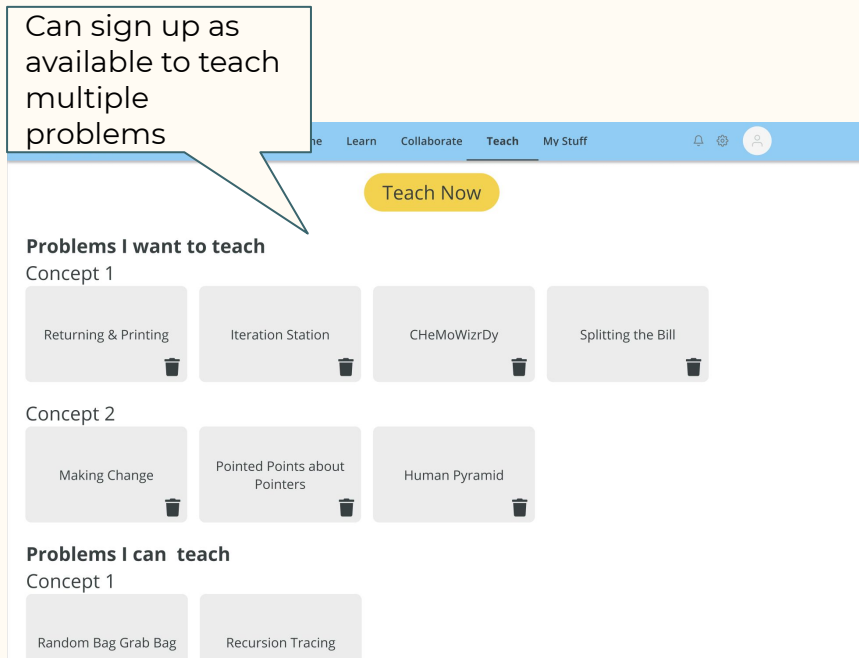
Clear way to do a synchronous session

Revised: Teaching

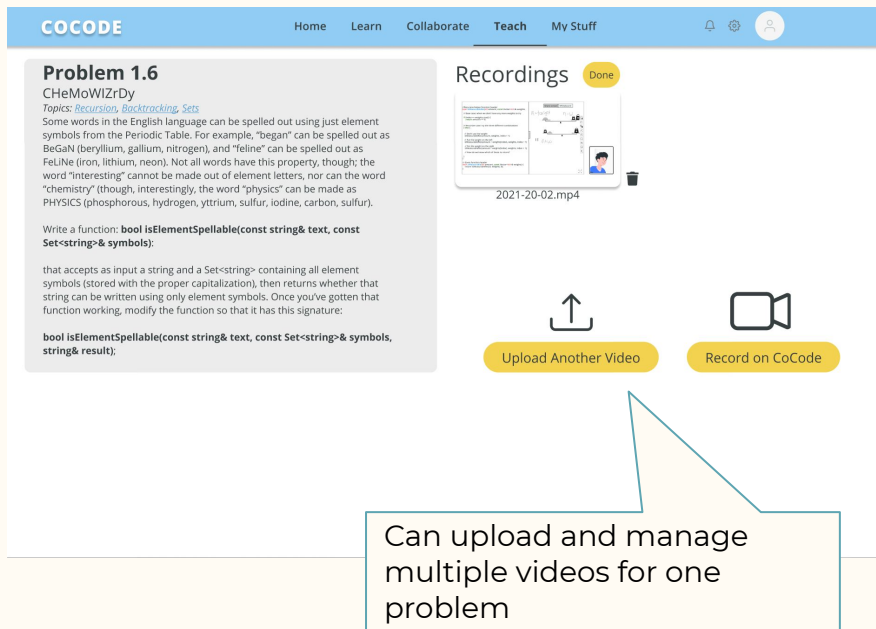
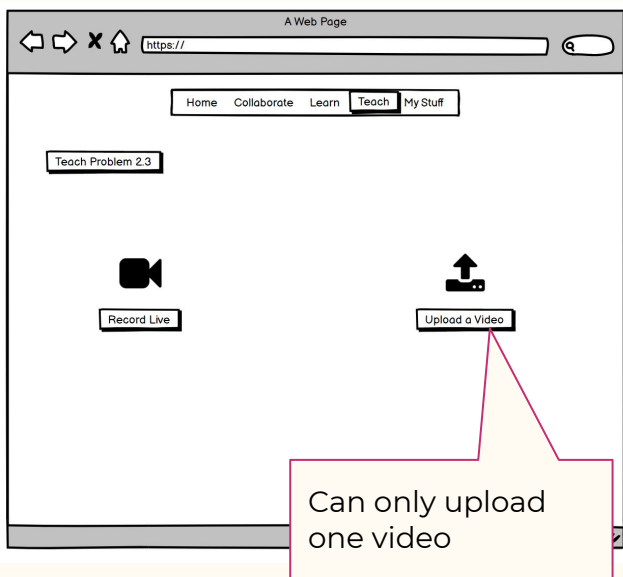
Can only sign up to teach one problem



Can sign up as available to teach multiple problems



Revised: Teaching





Revised: Teaching



Rationale:

We noticed confusion in the low-fi testing about how one would go about doing a synchronous teaching session. We also heard that it would be helpful to upload multiple videos for the same concept. Finally, we (and our participants) imagined that in classes with many problems, there may not always be someone interested in learning one particular problem.



Prototype Overview: Tools



- We used Figma to create the medium-fi prototype
- You can click through different buttons on our figma prototype to navigate through the screens
- If you are on a page and click somewhere without a button, it will show you the available interactions on that page
- Some clicks will bring you to new pages, some enter you into a collaborative space, and others allow you to save certain problems to your list of problems you want to learn or teach
- Our inspiration sites are: [Netflix](#) and [EdStem](#)




Prototype Overview: Limitations



- Do not have every choice of problem as functional
 - On a given slide with problems, there is only one problem that you can choose to learn/collaborate/teach
- In the learn tab, the whiteboard flow is on a timer as we do not have a functional whiteboard software yet
- The filter in our search bar does not work to find open rooms to collaborate
- We do not have the functionality to start a new problem with the same group that you are working with (whether that is as a collaborator, a teacher, or a student).
- We also do not have a great system for scheduling a time to learn/teach that is not right at the time that you get the notification



Prototype Overview: Hardcoded

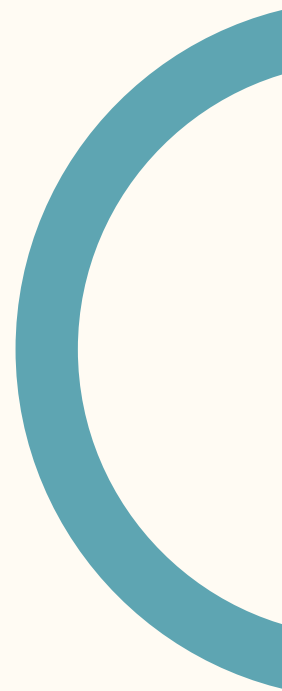
- The class schedule on the first screen is hard coded (CS109, CS106B, CS110)
 - The specific class we prototyped is CS106B, so all content is from that course
 - We hardcoded the lecture materials that you can visit to review to only one lecture (lecture 4)
 - We hardcoded the problems that one is learning or teaching to be **ismeasurable** and **chemowizardry** respectively. The functionality should exist for all problems, but we only built the medium-fi for these two problems
- 



What questions do you have?



Appendix



New “My Stuff” dashboard/portfolio

My Stuff-saved problems

COCODE Home Learn Collaborate Teach **My Stuff**

Nick P. CS 106B

Concept Problem

Returning & Printing

Iteration Station

Splitting the Bill

Recursion Tracing

Debugging Deduplicating

Making Change

Human Pyramid

References Available

Ordering Prerequisites

COCODE Home Learn Collaborate Teach **My Stuff**

Concept Highlight

Problem Highlight

This Week's Activity

Recently Saved

COCODE Home Learn Collaborate Teach **My Stuff**

My Courses

Course Resources

COCODE Home Learn Collaborate Teach **My Stuff**

Work in Progress

Splitting the Bill

Making Change

Debugging Deduplicating

Ordering Prerequisites

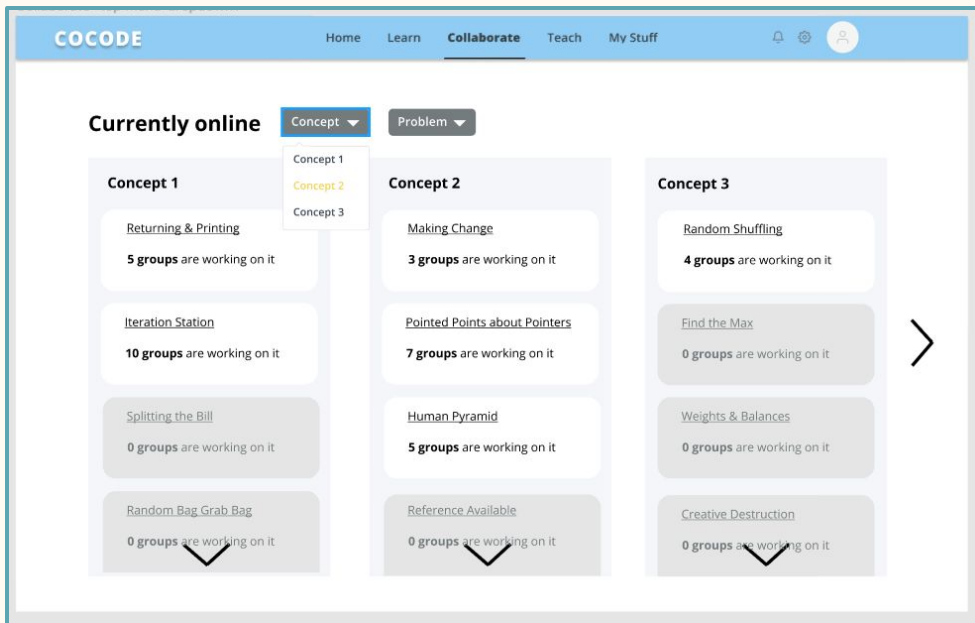
COCODE Home Learn Collaborate Teach **My Stuff**

Iteration Station

Work in Progress

IterationStation.Code

IterationStation.Resource



New group finder under collaborate

