

# CS 147 Final Report

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## Project name and value proposition

Croissant: Turn your fans into collaborators.

## Who we are

Peter Boennighausen (CS '21, MSCS '22) - Designer and developer

Will Buchanan (CS '21) - Designer and developer

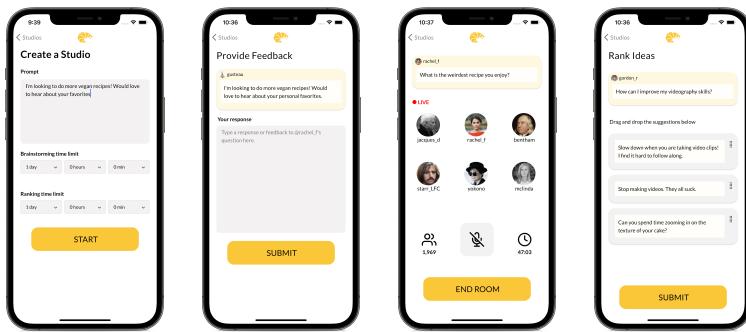
Sejal Jhawer (CS '21) - Designer and developer

Dhara Yu (SymSys '21, MSCS '22) - Designer and developer

## Problem and Solution Overview

In today's world, content creators and fans have so many ways to connect. The "creator economy" has given people an opportunity to share their unique talents and passions with the world, while producing more and more content for the public. However, this paradigm creates problems for its stakeholders. Creators experience a barrage of unfocused, negative feedback and impersonal fan relationships. Fans seek deeper, active connections beyond rarely-noticed comments.

The goal of Croissant is to address this lack of meaningful connection by enabling thoughtful, productive and creative discourse between content creators and fans. To do so, we built a platform in which creators can hold digital studios, where they provide an open-ended prompt for fan input. Fans submit their best ideas for review. Once this "brainstorming" phase is completed, fans then enter the "ranking" phase and surface the top ideas by ranking a sample of ideas submitted by other fans. After the specified amount of time has elapsed, creators review the feedback and host an audio chat on the platform, where they can speak live with the fans who submitted the best ideas.



Overview of the process as shown in our high-fidelity prototype

## Needfinding Interviews

For our initial round of needfinding, we interviewed three digital content creators: Rachel, a Stanford student who runs a YouTube baking channel with over a million subscribers; Jon, an investor and dad who runs an informational finance TikTok account with his teenage daughter; and Casey<sup>1</sup>, an 11-year-old gamer and digital art creator.

Rachel shared that the success of her channel overwhelmed her. She harbored a constant feeling that she was not doing enough to produce content or please her fans, and that she needed to maintain a positive, upbeat attitude even when she felt on-edge. With that said, Rachel noted that there were moments of her YouTube career that made her feel deeply gratified -- in particular, she said her best experience was when fans reached out to tell her that they viewed her as a role model.

In our conversation with Jon, we learned that he started making TikToks out of a desire to do something collaborative with his daughter, and to educate young people on financial management. While he said that he had fun making the videos, he also highlighted the aspects of the process he did not enjoy, namely, the tendency of social media interactions in his comments section to spiral into unrelated and occasionally controversial topics like politics, and the “addiction” to posting a new video and constantly monitoring views as they incrementally tick up.

When we talked to Casey to learn more about her technology habits, we learned that she used digital mediums (iMessage, Discord and Minecraft) to enhance existing relationships, rather than pursue new ones. For example, after school each day she would log onto Minecraft to play with her friends that she had seen earlier that day.

While these three interviewees were very different in their profiles and life experiences, our broad takeaway was that the most positive social interactions for content creators stemmed from

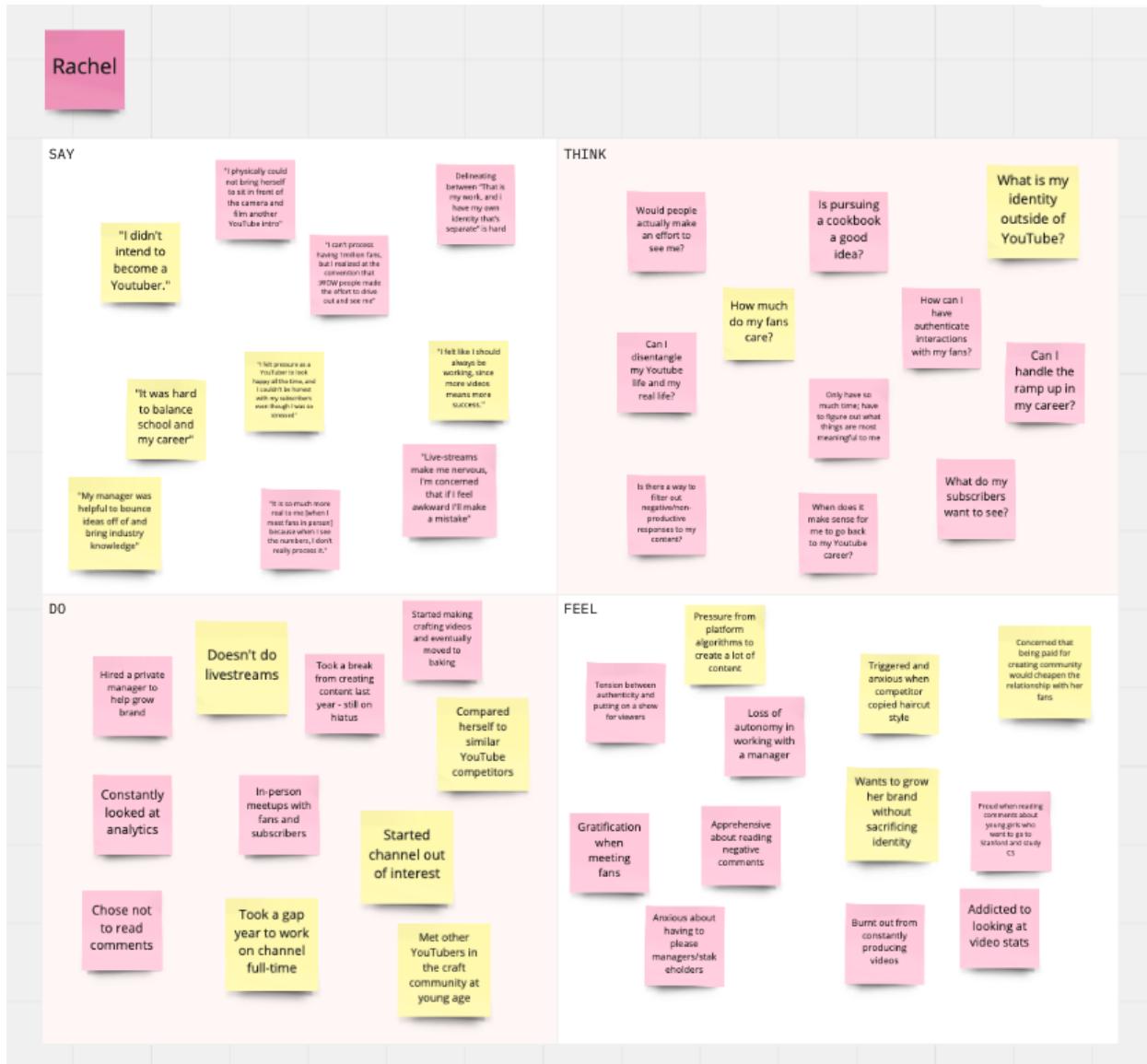
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<sup>1</sup> We use a pseudonym

personalized, intimate exchanges with their fans -- a relatively difficult experience to curate in their existing digital landscape.

In our second round of needfinding, we talked to Jack, a freelance journalist who is active on Twitter. We learned that the barrier between work and recreation in the Twittersphere had completely dissolved for Jack, resulting in a dysfunctional but dependent relationship with the platform.

We also had the opportunity to dive deeper into the fan side of the creator economy. We spoke with Nate, a Stanford student who has followed the travel blogger Ben Schlappig for several years and frequently engages with the blog. Nate shared with us that Ben blogged in such an authentic way that Nate felt like he personally knew him. In addition, Nate said that Ben's candor online gave Nate confidence to accept his own introvertedness. This last interview with Nate was particularly insightful for us, as it provided a particularly poignant example of how social platforms could be used to facilitate positive role model relationships.



Here is the empathy map we created after our interview with Rachel.

## POVs & Experience Prototypes

### POV statements

Here, we provide the 3 best Point of View (POV) statements we generated, as part of the design thinking methodology.

**WE MET...**

Rachel, a college student and YouTube creator who runs a popular baking channel.

**WE WERE AMAZED TO REALIZE...**

She would only read/respond to comments in the first hour because she knew they came from committed fans.

**IT WOULD BE GAME-CHANGING TO...**

Make the experience of engaging with her fan community regularly positive, constructive and personal.

**WE MET...**

Casey, an 11-year-old gamer and digital art creator.

**WE WERE AMAZED TO REALIZE...**

Her use of social media reinforced strong connections with existing friends.

**IT WOULD BE GAME-CHANGING TO...**

Allow other people to forge similarly strong relationships with friends through online mediums.

**WE MET...**

Nate, a Stanford student who is obsessed with travel and the airline industry.

**WE WERE AMAZED TO REALIZE...**

He's followed the travel blog of Ben Schlappig religiously for 8 years, and views Ben as an aspirational role model.

**IT WOULD BE GAME-CHANGING TO...**

Help foster the role model relationship between creators and superfans.

## Sample of HMW statements

Next, we generate How Might We (HMW) statements based on our POVs.

From Rachel's POV

HMW incentivize fans to engage constructively?

HMW we make the feeling of receiving views less like a sugar high and more like a meal?

HMW avoid the constant urge to refresh?

HMW spread the feeling of fulfillment over the entire creative process?

HMW leverage superfans' help to help curate the community?

HMW make creators look forward to receiving feedback -- both positive and negative?

From Casey's POV

HMW allow people to re-discover the physiological need to stop using screens?

HMW make digital interaction like going out to dinner with friends?

HMW make digital interactions naturally unwind just like in-person ones?

HMW make online relationships based on referrals/mutual friends?

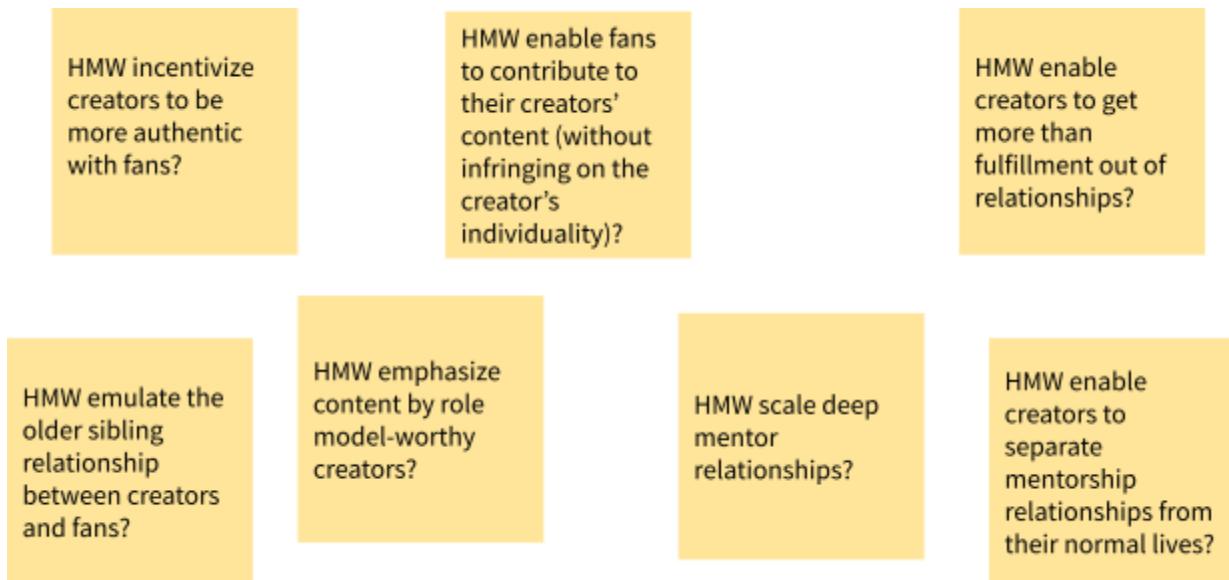
HMW root online relationships in a physical foundation?

HMW flip the narrative that online interactions are worse than in-person interactions?

HMW make social networks less individualistic and isolating?

HMW shame people from posting inauthentic content?

## From Nate's POV



## Top Solutions and Experience Prototypes

From these HMW statements, we generated solutions, with our 3 top ideas as follows:

1. Create a daily digest for creators, with a more detailed but smaller sample of their stats (views, comments, etc.) to encourage less frequent, more thoughtful engagement.
2. Match people based on shared fandoms in order to form friendships and plan physical meet-ups.
3. Create a digital space where creators can put their thoughts for their next work and involve fans in the entire creative process.

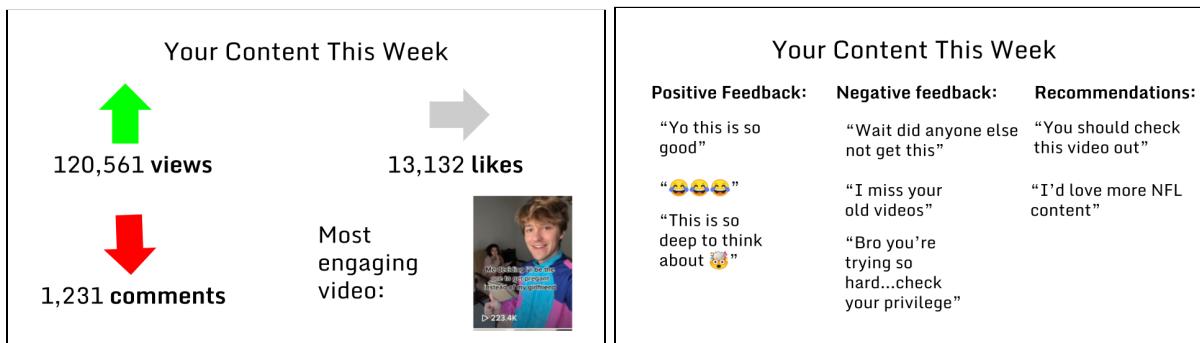
For each of these solutions, we designed an experience prototype to test the relevant assumptions.

### Experience Prototype #1

#### Assumptions Tested

- Creators desire more qualitative feedback to understand content performance
- Creators are willing to break out of the constant-refresh mentality and engage in a slower, more periodic fashion

## Prototype Overview



We ran a simple A/B test with a TikTok creator. We showed him 2 different digest views - one with more quantitative content, and one with more qualitative - and asked him which one he preferred, and why.

## Findings

We found that our interviewee preferred the quantitative content, since the qualitative metrics (i.e. comments) aren't particularly helpful to him and can sometimes be abusive. He recognized the irrationality of constantly checking his phone to look at views and likes, but still preferred it over the alternative.

## Experience Prototype #2

### Assumptions Tested

- Shared digital/media interests can help kickstart a friendship
- People are willing to start a relationship online based solely on shared fandom

## Prototype Overview

We asked our interviewee about several hypothetical situations in which she had the chance to meet up with a random person who shared her passion for The Bachelor, to pinpoint what she would or wouldn't feel comfortable with.

## Findings

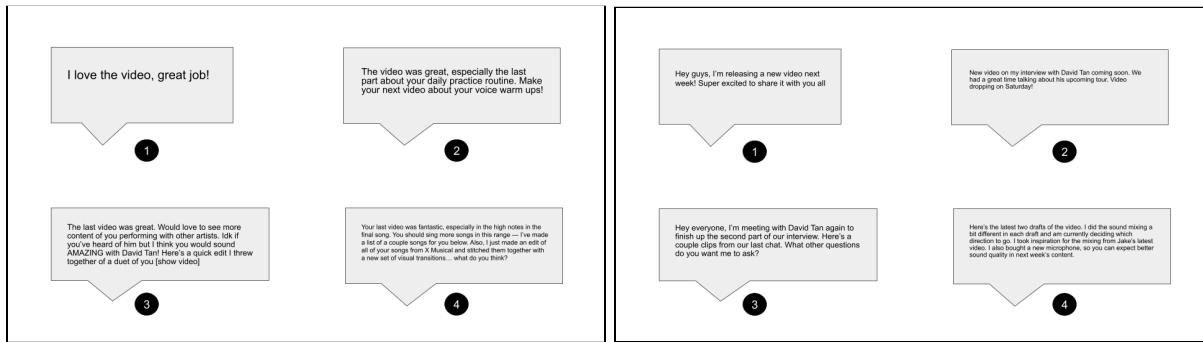
Our interviewee had very negative reactions to all the hypothetical scenarios we posed; she worried about the "creepiness" of interacting with strangers, and expressed doubts that following the same content creator meant there was enough of a commonality to develop a deep and meaningful friendship.

## Experience Prototype #3

### Assumptions Tested

- Creators want fan suggestions/feedback over the entire development of an idea
- Creators are willing to share behind-the-scenes and an unedited version of themselves
- Fans want to contribute to their favorite creators' content
- Fans are interested to see the behind-the-scenes

### Prototype Overview



We showed a creator and a fan 2 slides: one that showed possible fan comments, ranging from general to hyperspecific, and one that showed possible creator comments, also ranging from general to hyperspecific. We asked each interviewee what level of feedback they most resonated with, from both the creator perspective and the fan perspective.

### Findings

Our interviewees appreciated the general praise, but found the medium-detail level feedback to be more helpful because it was directly actionable. Interestingly, they both independently raised that they would prefer feedback at the very beginning or very end of a creative venture - not in the middle.

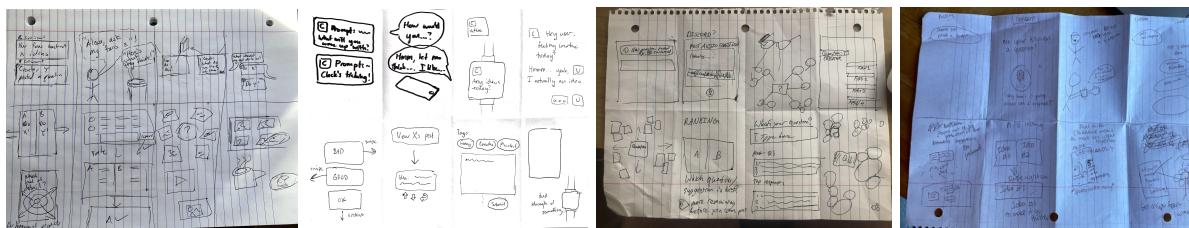
### Overall Takeaways

After conducting experience prototype interviews, we found that really only one of our proposed solutions held up under further scrutiny - the fan-creator feedback system. That made it straightforward for us to figure out our path forward, into the design stage of the process.

# Design Evolution

## Initial Sketching

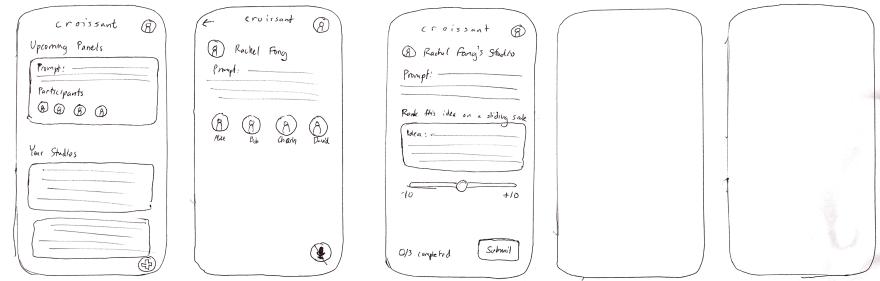
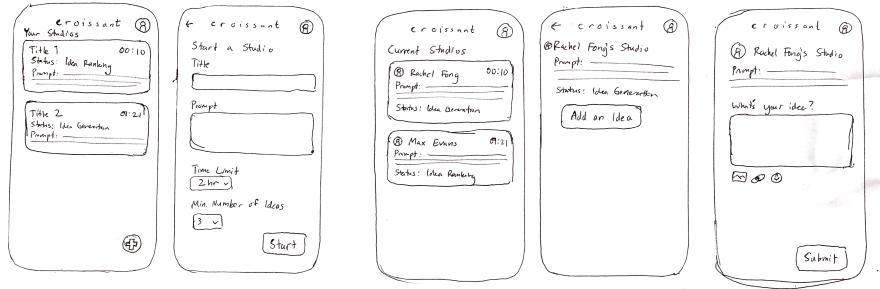
While our needfinding and experience prototyping established that creators experience burnout and want more productive relationships with their fans, we were not set on the exact interface of our product. In our crazy eight sketches from class, we explored a whole host of different options.



After going over the sketches, we developed three of them into more complete ideas. First, we considered an entirely audio-based network. Next, we considered a bubble-based interface, in which popular ideas vied to take up the entire screen. Finally, we considered a text-based interface for fans to leave comments. After weighing the pros and cons of each, we selected an interface that combines a more conventional text-based experience with synchronous conversations between creators and committed fans.

With those decisions made, we focused on creating several tasks and putting together our lo-fi prototype. We wanted each task to correspond to a key step of the creative process, so we came up with the following four tasks:

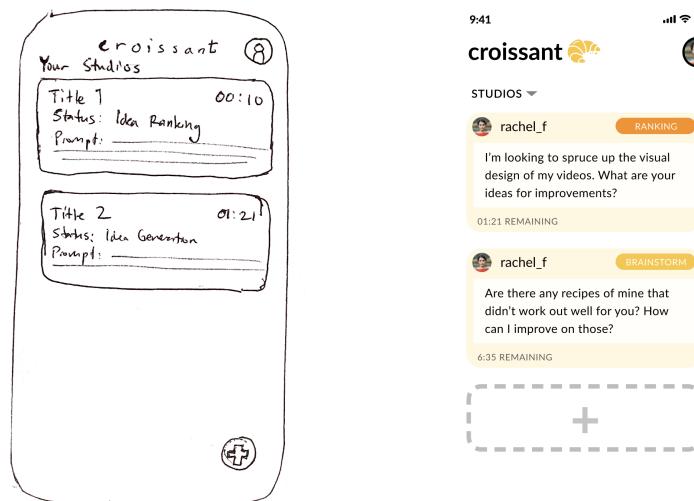
- First, creators pose a question to their fanbase by starting a studio (simple)
- Next, fans participate in a studio by responding to a creator's prompt (medium)
- Once all fans have completed their idea generation, they rank or rate the ideas of others in order to have their idea submitted for review as well (medium)
- Finally, creators are able to discuss feedback with the fans who submitted the best ideas (complex)



Since our product is two-sided, we interviewed two creators and two fans to test our prototype. Based on the feedback from these interviews, we implemented several design changes.

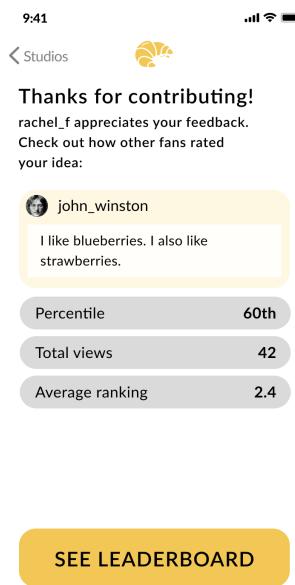
## Adding a Studio

In terms of UI usability and task execution, the only real hitch in our two creator tests occurred while interviewing Christie, who could not find the floating plus button to create a new studio. To fix this, we added a new way to add studios which included a dashed outline of a studio card to make it more obvious.



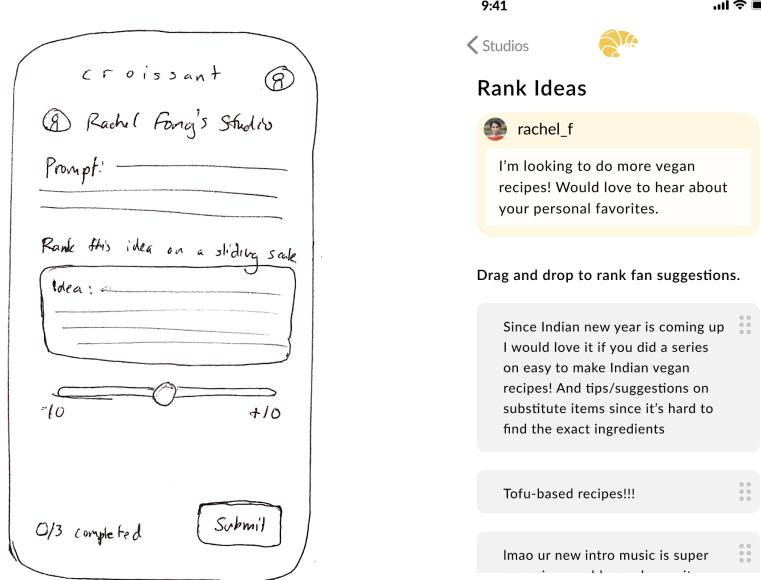
## Fan Results Screen

Our interview with Gigi, a superfan of a fitness TikToker, pinpointed another important issue. She mentioned that if she went multiple rounds without getting to talk to the creator or any form of recognition for her feedback, she would drift away from the platform. Hence, we created a screen that gave statistics and results about a submission that did not get selected by other fans. This ensures that fans can see that their ideas have been reviewed by others, as well as understand how they performed in order to improve their suggestions for future studios.



## Updated Ranking System

A final take away from the fan interviews, confirmed in both conversations, was the superiority of ranking over a simple A/B test or a rating system. Adam and Gigi both believed that rating five pieces of feedback fulfilled their desire to help surface quality feedback without causing cognitive overload. Gigi also mentioned that she would prefer to see more comments in a ranking as compared to reading only two, isolated comments in an A/B test because she was interested in receiving more context while ranking. Because of this, we implemented a drag-and-drop ranked voting system where each fan ranks 4 comments at a time.



## Major Usability Problems Addressed

Our heuristic evaluators only surfaced one severity 3 or 4 evaluation:

### H6: Recognition Rather than Recall / Severity 3

- When ranking a small set of ideas, as done in the prototype, the drag-and-drop system works very effectively. However, I have a feeling that after a list has about 10-15 ideas, the drag and drop will be timely or too fast & users will get lost in the sea of text. There is a possibility that Croissant intends to only provide a focused set of ranking options to each user.
- Fix: Implement a more scalable ranking feature

We believe that this is due to a misunderstanding of the ranking phase of Croissant, as we intend for each user to only have to rank a subset of 5 other ideas. This was still a useful data point, as it revealed that there was a lack of transparency in parts of the process. There were many severity 1 and 2 violations that also fit this trend of little transparency and user confusion about the studio process. Here are several other that were mentioned:

### H10: Help and Documentation / Severity 2

- When ranking the ideas, it was unclear as to whether these rankings would be the final say for the idea being chosen, or if the creator was going to have any say

- Fix: Make it clear on the user's side how the ranking system works and how it will look like on the creator side

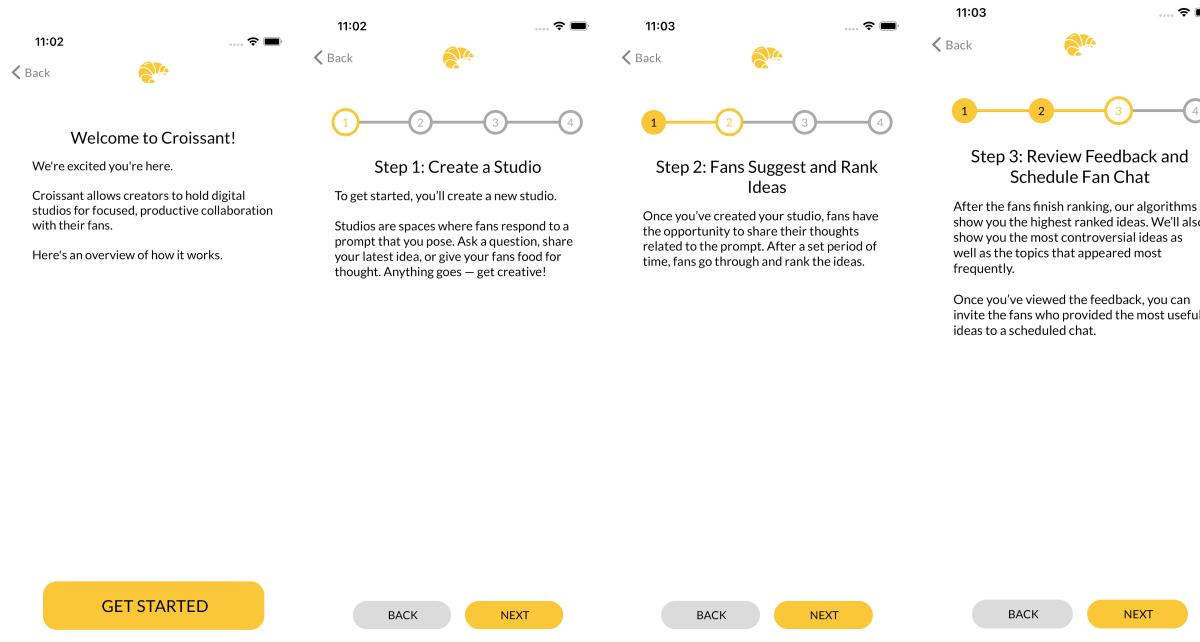
## H10: Help and Documentation / Severity 2

- No information on how a studio works (both on the creator end and fan end) and no information on what creating a room/hosting a live conversation will entail on the creator end.
- Fix: Additional instructions that explain how the studio will go that show up when creating a studio as well as information on creating a room after results come out.

## H6: Recognition rather than recall / Severity 1

- A first-time fan who only vaguely knows that this app will help them hang out a bit more with a creator will be confused by the darker yellow corner circles on the homescreen describing prompts as "Results," "Ranking," and "Brainstorm." They won't know what these words mean nor how they fall in the flow of this app and what the words about the type of interaction have.
- Fix: Visualize these stages perhaps through a tiny timeline, or choose words that more clearly indicate actions that the user can take.

This led us to implement an onboarding process, where we detail each of the steps that a studio entails and what is required of the user at each step



Another issue that came up frequently in our heuristic evaluation regarded the ability to edit and delete content:

### **H3: User Control and Freedom / Severity 2**

- It doesn't seem like the creator can delete or edit a pre-existing studio. I think it would be helpful if they were able to edit a studio (for example the time limit or content) or remove a studio they just posted if they made a mistake.
- Fix: Add a way to edit a pre-existing studio next to each studio in the home page of the creator view.

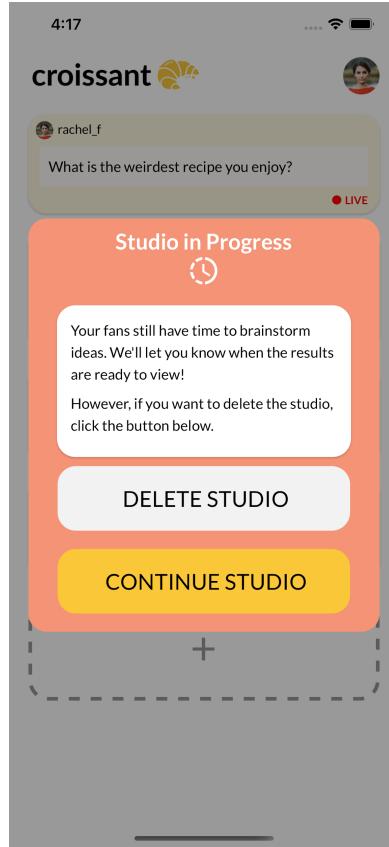
### **H3: User Control and Freedom / Severity 2**

- After a user makes a suggestion/provides feedback on a studio, there is no way for them to go edit that suggestion or add to it
- Fix: Allow an option for a user to click on that studio again and change their suggestion until the time is up

### **H3: User Control and Freedom / Found by B / Severity 1**

- After a user ranks the suggestions and submits the rankings, there is no way to go back and alter the rankings
- Fix: Either tell the user that the rankings they submit will be final, or provide an option for the user to alter the rankings afterwards

This feedback led us to enable edit and delete functionality for creators with studios in progress and fans who have contributed ideas to a studio



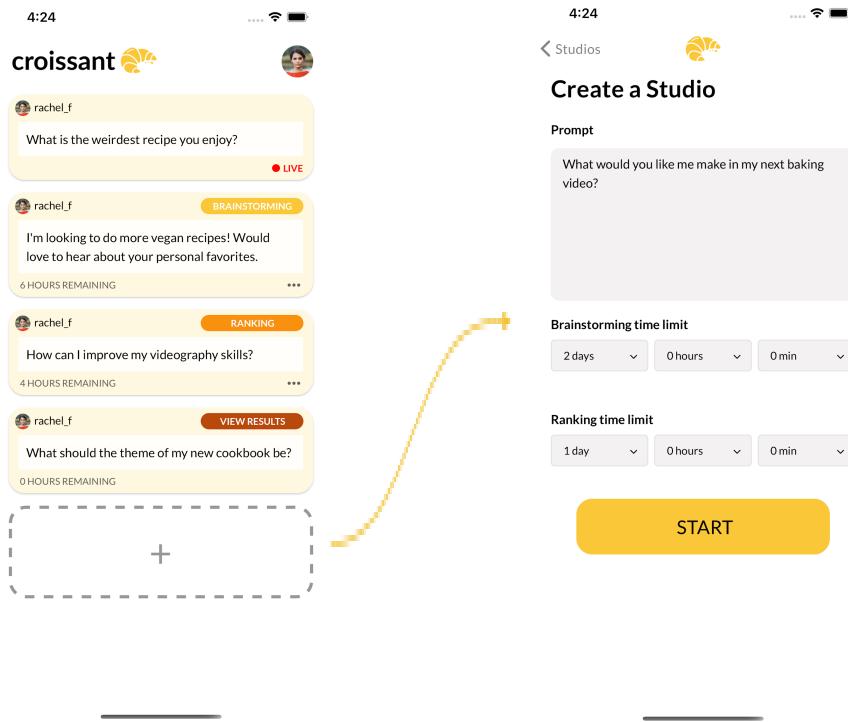
## Additional Design Changes

Moving from the medium-fi to the hi-fi, we made a few additional design changes.

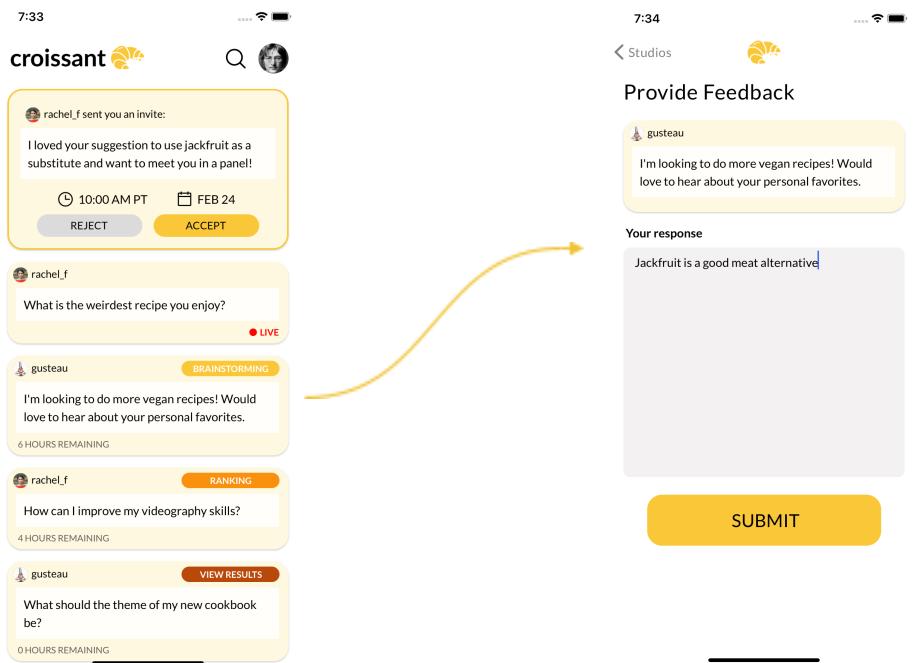
- Changed implementation of dropdown menus and date pickers to work with Expo and React Native libraries
- Added salmon-colored accent to add more color to the design
- Added a new type of card to the home screen to differentiate between an ongoing studio and an upcoming panel

# High-Fidelity Final Design

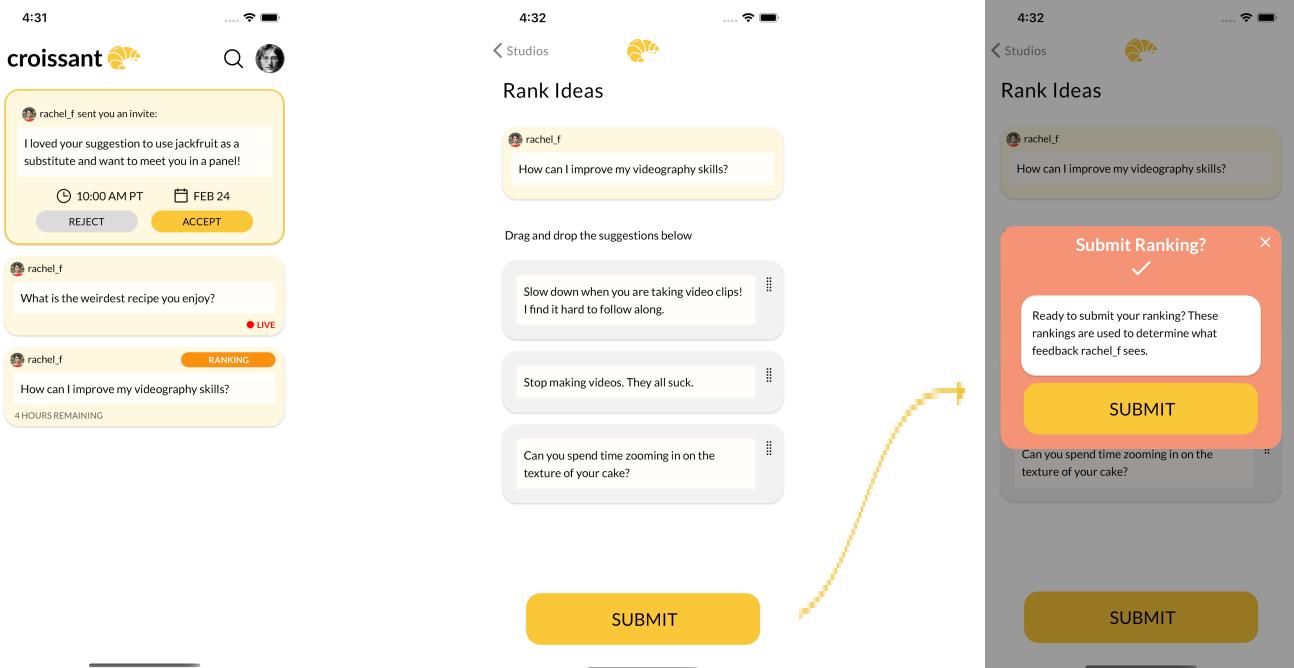
## Task #1: Creator makes a new studio



## Task #2: Contribute to studio



## Task #3: After contributing ideas, fans rank ideas in a studio (medium)



## Task #4: Creators view results, and schedule panel

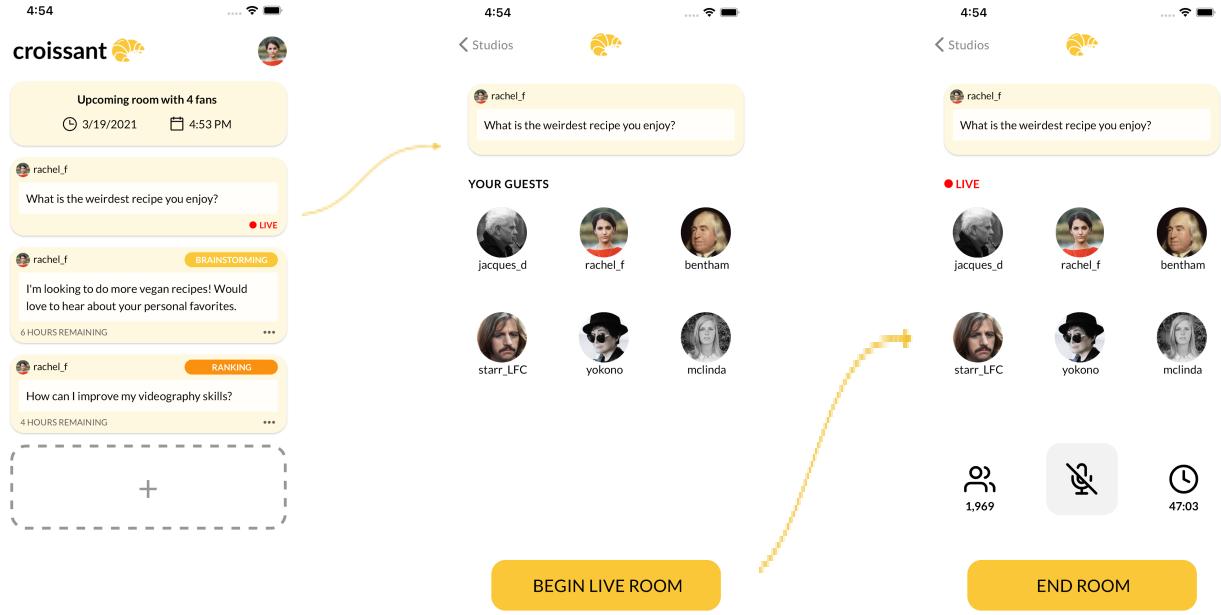
The image consists of three screenshots of a mobile application interface, connected by yellow arrows indicating a flow from left to right.

**Screenshot 1 (Left):** Shows a live session titled "croissant". It displays four messages from user "rachel\_f" asking for recipe ideas, improving videography skills, and cookbook themes. Below the messages are two sections: "BRAINSTORMING" and "RANKING". A dashed box highlights the "VIEW RESULTS" button in the "RANKING" section. A yellow arrow points from this button to the "CREATE ROOM" button in Screenshot 2.

**Screenshot 2 (Middle):** Shows the results screen at 4:53. It displays the number of participants (850) and ideas (1,124). Below this are three ranking categories: "Fan Favorites", "Most Controversial", and "Most Representative". A yellow arrow points from the "CREATE ROOM" button here to the "Send Invite" screen in Screenshot 3.

**Screenshot 3 (Right):** Shows the "Send Invite" screen at 4:53. It shows a message from "john\_winston" suggesting a dark chocolate-based cookbook. Below it is a text input field with the placeholder "Thanks for the idea john! I'm excited to talk soon." A yellow arrow points from the "SEND" button in this screen back to the "CREATE ROOM" button in Screenshot 2.

## Task #5: Creators and fans join live panel discussion



## Final Prototype Implementation

We used Figma to design the layout and flow of the app. For the high-fidelity development, we used React Native for our main framework and Google Firebase for our backend database. We used Expo for building and simulating our application. Using the combination of React Native and Expo was extremely helpful for rapid development because it enabled us to build off existing libraries and quickly test our implementation on different devices. We used various libraries for our onboarding flow, dropdown pickers, date and time selectors, fonts, and drag-and-drop ranking. React Native and supporting libraries made it simple to build complex interactions and style them to fit our UI design specifications. Firebase was also very useful for storing state so that the impacts of user actions would persist throughout the session.

However, working with React Native and Expo for cross-platform development had its downsides. First, we were limited on what libraries we could use, as some niche React Native libraries that would have been useful for this project are not supported by Expo. Second, a few of the Expo

libraries we used are not fully supported on Android, so several features of our app are not functional on some devices. We also found it challenging to match the interface in React with our medium-fidelity prototype on Figma, as we had to develop the interface without a specific aspect ratio in mind.

Almost all of the content in our final implementation is hard-coded, as we did not build out a functional social network with interaction between users. At a high level we created accounts and comments from fake users in order to populate the interface, so any content that is not explicitly entered by the user was hard-coded by the development team. In addition to hard-coded comments and users, fan users can only follow a limited list of creators composed of rachel\_f and some celebrity chefs. While users are able to create their own studios (as a creator) and post their own ideas (as a fan), these actions do not affect any underlying state beyond appearing in the creator home screen. In addition, the state of studios do not evolve over time. The brainstorming studios in both fan and creator views do not become ranking studios over time — each time the user enters the app, they will be presented with the same studios in the same state. Users are not able to change their profile picture — everyone is John Lennon. Finally, the panels are an example of Wizard of Oz techniques, as creators and fans are not able to actually listen or participate in a live discussion.

## Summary

Croissant was born from the idea that digital wellbeing doesn't just mean spending less time on our phones. Our design evolved from a vague notion that we could improve the quality of time spent online for passion project creators, and developed through needfinding and prototyping into a platform to give creators and their fans a place to have productive, rewarding interactions. We learned that the people most satisfied with their online interactions use their devices for collaborative, creative work in small groups. Throughout our validation and further testing, we found that this ideal interaction resonated with creators and fans across disciplines and generations. If we had more time to continue the project, we would build out the backend functionality to support brainstorming, ranking, and live panels. We would also like to perform more usability testing and perform alpha testing to analyze user interactions on the platform. We believe that there is a gap in the current ecosystem for genuine interaction between creators and their fans that goes beyond exclusive content hidden behind a paywall. The Croissant team is excited to continue observing this space beyond the end of the project.