

Cherry

Final Report

Life Transitions

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Project:

Cherry

Value Proposition:

Cherish your long-distance relationships everyday.

Meet The Team

Symphony K.

UI Designer



Annie M.

Mobile Developer



Jason P.

UI Designer



Gautham R.

Mobile Developer



Problem and Solution Overview

Problem

Relationships with friends, family and life partners become weaker over long distance, because people are busy with their day-to-day lives. People also hesitate to initiate personal conversations.

Solution

We propose Cherry, an app that initiates questions and allows users to respond quickly and creatively to create daily, thoughtful conversations and maintain strong relationships.

Needfinding Interviews:

In order to thoroughly explore our problem space, we performed 9 need-finding interviews, some virtual and some in-person. We selected a diverse range of participants, but with our problem space focused on long-distance relationships, we made sure to find users all having unique experiences with recent transitions to long-distance relationships of any kind, including romantic, familial, and platonic. Specifically, we aimed to include multiple “extreme users”, including a recent college graduate in a 4-year long-distance relationship, a new college freshman who just moved away from home, a mom of a new college student who also just moved away, and an airline hostess spending most of her week traveling to different states and countries. Our interviewees spanned 7 major cities across all of continental US.

We compiled our observations into empathy maps to step into the shoes of our interviewees and better understand the components that made up their perspectives. While our interviewees came from such different walks of life and locations, we found consistent themes across nearly every interview: people found themselves too busy with their everyday responsibilities and lives to find time to properly care for their long-distance relationships. On a more granular level, we found tensions from difficulty balancing time between meeting new people and maintaining old relationships, from unequal balances of effort from both sides of a relationship, and miscommunication from differing love languages. Ultimately, we were surprised to find interviewees know they need to put in more effort but struggled to do so sustainably. From these, we deduced that people in long-distance relationships need a way to easily align schedules, a way to organize and optimize their time, and a way to communicate in simple yet effective ways to encourage spontaneous interactions.



Figure 1. Sample of photos of our interviewees that felt comfortable sharing their pictures. Note: all interviewees signed consent forms and gave explicit permission for us to use our findings from their interviews.



Figure 2. One of the empathy maps created from our needfinding interviews. Observations from interviews were analyzed and categorized into four categories: what the person says, what the person thinks, what the user does, and what the user feels. This empathy map came specifically from a 22-year-old recent college graduate.

POVs & Experience Prototypes

Following these preliminary findings, we began to develop user Point of Views to better understand just exactly what the perspective of our potential users are facing with their current means of maintaining long-distance relationships. We looked at our three most insightful interviews, creating POV statements for each interviewee and then creating How Might We (HMW) statements to aid in the brainstorming process for navigating our solution space.

POV #1

We met Alicia, a mom who has been long-distance from her sister for twenty years.

We were surprised to find that even though she says she appreciates small regular contact, she only communicates with her sister once a month to discuss important family problems.

We wonder if this means that Alicia only communicates out of obligation. **It would be game-changing** to provide Alicia with a low-effort way to let her sister know she's still thinking about her.

HMW's for POV #1

- How might we make communication more fun
- How might we help people reach out about more sentimental topics
- How might we help people send simple messages or "nudges"
- How might we help people connect through busy schedules
- How might we allow for nonverbal ways to maintain relationships
- How might we make communication simple and meaningful
- How might we incentivize people to reach out regularly
- How might we keep people accountable in maintaining relationships
- How might we make people want to reach out more often
- How might we give people ideas on ways to reach out
- How might we build on their familial bond to create new avenues of connection?
- How might we separate the more serious, business topics and the more light-hearted fun conversations
- How might we leverage objects related to major events of their day to help catch people
- How might we make already texting platforms into games?
- How might we make connecting with relatives the most exciting parts of their days
- How might we make change the way people see discussions of family issues?
- How might we break down the different inter-family power dynamics to foster better communication?

POV #2

We met Josie, a college junior who has been in a long-distance relationship with her boyfriend for 3 years.

We were surprised to find that it took them over a year and a half to feel comfortable in their long distance relationship since they couldn't understand each others' needs at the start of the relationship.

We wonder if this means online communication is not very conducive to learning and talking about personal matters such as needs and wants.

It would be game-changing to be able to easily and comfortably share ones' needs or wants in a relationship.

HMW's for POV #2

- How might we energize people to talk about intimate topics for fun?
- How might we help others feel less embarrassed about what they want
- How might we facilitate open communication
- How might we make communication sexy
- How might we help break the ice
- How might we normalize talking about deeper issues
- How might we create a safe space
- How might we help people share their needs indirectly
- How might we make it fun to talk about personal topics over the internet
- How might we lessen the burden of reaching out
- How might we make talking about needs/wants necessary
- How might we force people to ask questions they are curious about
- How might we build upon the romantic love between significant others to lead to better conversations?
- How might we diminish the initial feelings of embarrassment at the beginning of an LDR
- How might we emphasize the importance of learning during communication
- How might we help the receiving end be more receptive to direct wants/needs
- How might we make people directly speaking their wants/needs more of a norm

POV #3

We met Natasha, a high school senior who has never been in a long distance friendship or relationship.

We were surprised to find that she didn't like having the obligation to respond to private messages and snaps from her friends, but also found that making larger communications through Instagram weren't personal enough.

We wonder if this means that people dislike creating their own content for others to consume.

It would be game-changing if people could consume each other's media content without having to manually create their own.

HMW's for POV #3

- How might we remove the obligation of responding to communication
- How might we make regular communication not seem like an obligation
- How might we make creating content enjoyable
- How might we allow for nonverbal ways to maintain relationships
- How might we help people automatically create media
- How might we give people ideas for how to reach out
- How might we make it fun to think of content ideas
- How might we make people want to respond to their conversations
- How might we generate custom content for people to send out
- How might we make larger communications seem more personal
- How might we make creating content the best part of their day
- How might we make creating content less annoying
- How might we use a person's already existing desire to share their lives on social media to create more personal conversations?
- How might we make responding to conversations the most exciting part, instead of just receiving?

Top Solutions

From these POV and HMW statements, we selected the top 3 most standout HMW's - one from each POV - and brainstormed a diverse array of solutions, as shown in Figure 3.

Experience Prototypes

Each solution was built off a core assumption about our user behavior, and as such we created the following experience prototypes to either validate or invalidate our assumptions.

- **Prototype 1**
 - **Solution:** Widget that allows users to send and receive drawings and handwritten notes to each other's homescreens
 - **Core Assumption:** People find spontaneous and unexpected handmade messages more meaningful
 - **Experience Prototype:** We hand-drew meaningful messages and sent them via iMessage. Participants then made their own versions and were encouraged to send them forward to their friends
 - **What Worked:** There was a consistent signal that our testers felt the added effort was meaningful and sincere. Many had a lot of fun sending it and thought the gesture was sweet.
 - **What Didn't:** Confusion on why it was sent, but overall strong positive reaction. Surprisingly, the same spontaneity that made people like receiving the message made them uncomfortable with sending it
 - **Validity:** Yes, people do find spontaneous and unexpected handmade messages more meaningful! Much more positively than we expected. But, people weren't as likely to send themselves.

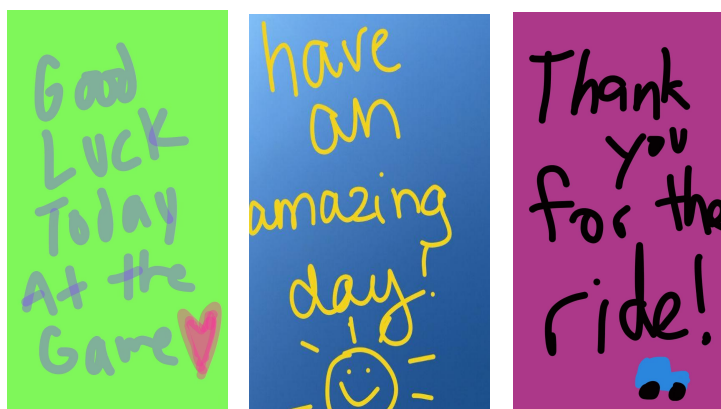


Figure 4. These are examples of the hand-drawn meaningful messages sent to participants.

- **Prototype 2**
 - **Solution:** Message platform that allows users to choose categories of questions and then provides prompts and has users answer
 - **Assumption:** People are more likely to have deep conversations when there are questions to kickstart the conversation.

- **Experience Prototype:** We gathered 10 questions from “36 Questions That Lead To Love”. We played a game (10 rounds) where participants chose whether they wanted to pick a question from the question bank or pose their own question.
 - **What Worked:** Playing the game successfully initiated meaningful conversation, with many responses getting very heartfelt and personal. Participants considered creating questions as they played the game, and noticeably they got more comfortable as they went on.
 - **What Didn't:** Many participants mentioned not liking a 3rd party watching them answer. Also, comments were made of how the question bank seemed a bit generic.
 - **Validity:** Yes, people are receptive to discussing deeper subjects when there are questions to kickstart the conversation! We noticed eagerness, as exemplified when participants were comfortable creating their own questions.
- **Prototype 3**
 - **Solution:** A widget or app that counts up from the last time the user contacted their connections and pings them to reach out
 - **Assumption:** People will be motivated by guilt and feel pressure when they can quantify the lack of connection
 - **Experience Prototype:** We made people aware of the amount of time since they last contacted their family by directly asking them when the last time they contacted family was and looked to see if there was an impact in whether or not they wanted to reach out sooner.
 - **What Worked:** Some participants were reminded about certain relationships they hadn't thought of. They admitted to feeling guilty and told us they were likely to plan to reach out.
 - **What Didn't:** Some people weren't impacted at all after knowing the number of days it's been. They didn't need a reminder and were planning to reach out soon anyway. Others had already been feeling bad about not being able to find time but the actual number of days didn't motivate them anymore
 - **Validity:** The assumption was proven to be mostly not valid. Most people didn't need reminders, and others either didn't feel guilt or didn't care to act on it after knowing how long it's been.

Design Evolution

Winning Solution

Based on our experience prototype results, **our winning solution was the auto-generated questions**. From our experience prototypes with this solution, we found extremely positive responses without the pitfalls of the other solutions. Notably, the auto-generated questions solution doesn't put people on the spot to break communication norms themselves (Solution 1's drawback), and it doesn't have to rely on negative reinforcement like guilt for users to actually use the tool (Solution 3's drawback).

We identified the following tasks we wanted users to engage in when using our solution:

1. **Simple Task:** Check in with my long-distance loved one/friend by sending them a daily question
 - a. **Rationale:** The core of our solution is to allow users to send auto-generated questions to spark those initial deep conversations and remove the hesitation and execution effort needed. As such, the most common and simplest tasks our users would be making is to send a daily question in order to keep up with an LDR.
2. **Moderate Task:** Review Group Messages to Stay Up-To Date with Long Distance Friend Groups
 - a. **Rationale:** From our needfinding, we found that LDR's mean much more than just 1-1 romantic or platonic relationships. Many interviewees often felt that friend groups were even more difficult to maintain just due to the increased number of people they had to keep up with. As such, we wanted to allow for full coverage of all types of LDR's, including friend circles.
3. **Moderate Task:** Respond to my friend's question with flexibility in creative expression
 - a. **Rationale:** One of the values we knew we wanted to incorporate into our app was to allow users to express their creativity with responding, with our experience prototype experiments showing users enjoyed having creative mediums such as drawing or audio.
4. **Advanced Task:** Start a rapid-fire session with a friend to go back and forth with deep questions
 - a. **Rationale:** Our experience of prototypes experimentation and needfinding found that while daily check ins were helpful in helping people feel more connected, people also found that longer sessions of back and forth questions allowed them to explore much deeper topics and delve into personal stories that they

otherwise wouldn't have shared. As such, we knew we wanted to provide users a mode where they can spark these deeper and reciprocal conversations.

Concept and UI Exploration

During our brainstorming, we explored multiple ideas of what type of user interfaces might look like for our solution. The below figures outline some of our rejected ideas and the ultimate chosen interface.

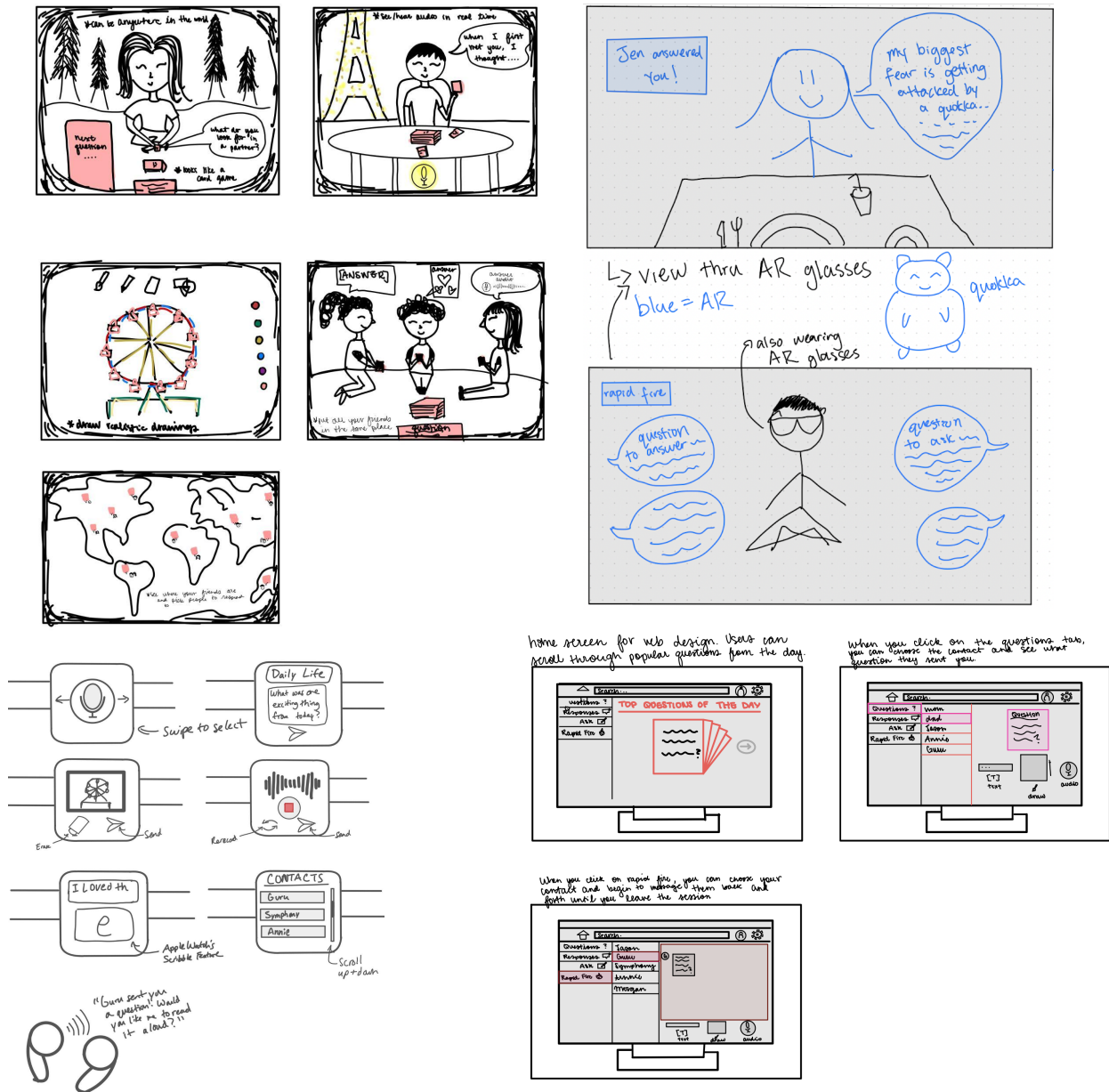


Figure 5: The above 4 images depict the 4 different design ideas that were rejected. In clockwise order from top-left, we explored the idea of interacting in VR for a simulated face-to-face experience, AR glasses that can allow for the daily questions to be easily

integrated into your everyday sight, wearables to allow for ease of portability and convenience, and a web application on a desktop or laptop.

Chosen Design Sketch

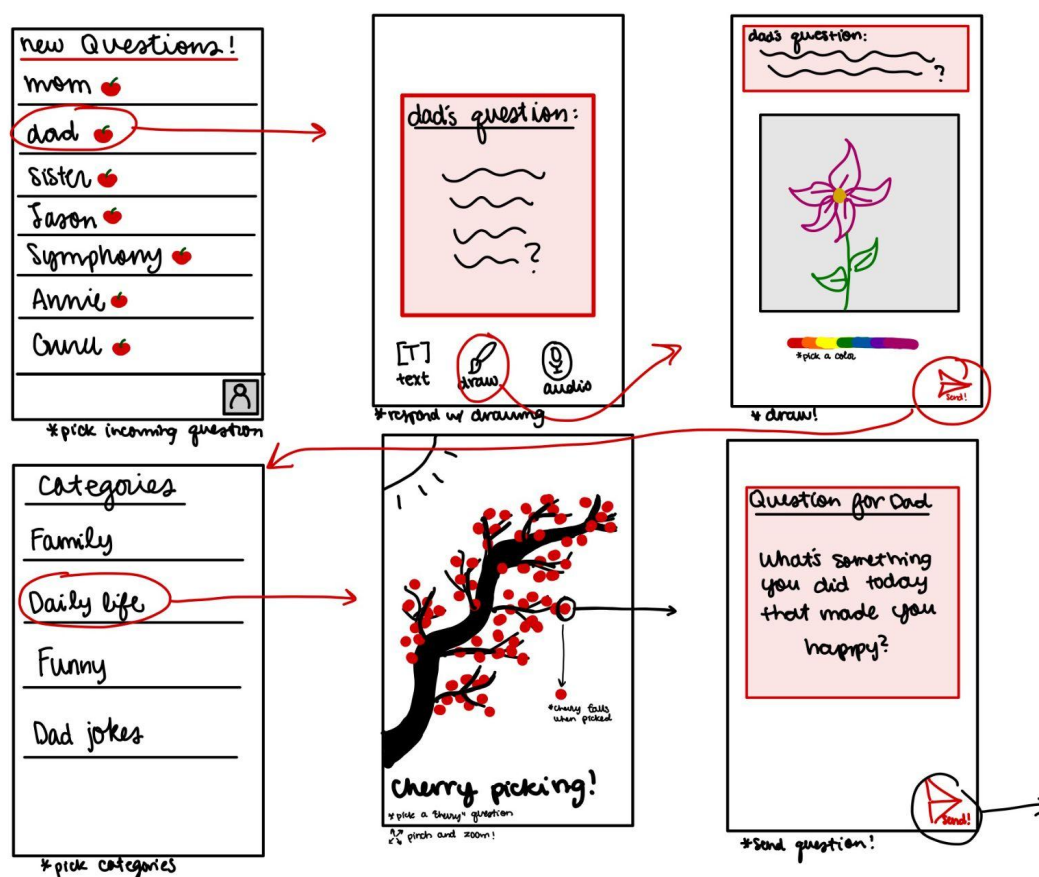


Figure 7: The above image depicts our chosen sketch of a mobile app interface for our solution. Users can view unread questions, answer them by writing/drawing/recording, “pick” a cherry from the question tree and return another question to the contact.

Our top 2 interfaces were the VR modality and the mobile application. We constructed storyboards for both and listed out pros and cons of each. Ultimately, we decided on a mobile app user interface. In our needfinding stage, we found that people desire simple and quick solutions. Cherry will provide the most value to people if they can use it with as many of their loved ones as possible, and with such a wide spectrum of different technical skills and fluency, we felt the learning curve and accessibility of the other technologies were clear reasons to rule out AR, VR, and wearables. For daily use, the convenience of a mobile phone allows for more consistent and frictionless daily interaction with our solution compared to traditional web/desktop applications. The mobile app’s convenience, accessibility, and ease of use made it an optimal choice.

Following this decision, we constructed a hand-drawn low-fi prototype to test our initial ideas for the mobile application UI that we could use for prototype testing. We created a paper prototype, consisting of each page that our user could navigate to. Each page was designed on a card that was approximately the same size as a smartphone screen. During testing, participants treated these cards as a touchscreen; they interacted with it by “clicking”, “typing” and “scrolling”. The below image shows the low-fi prototype we constructed for each of the tasks.

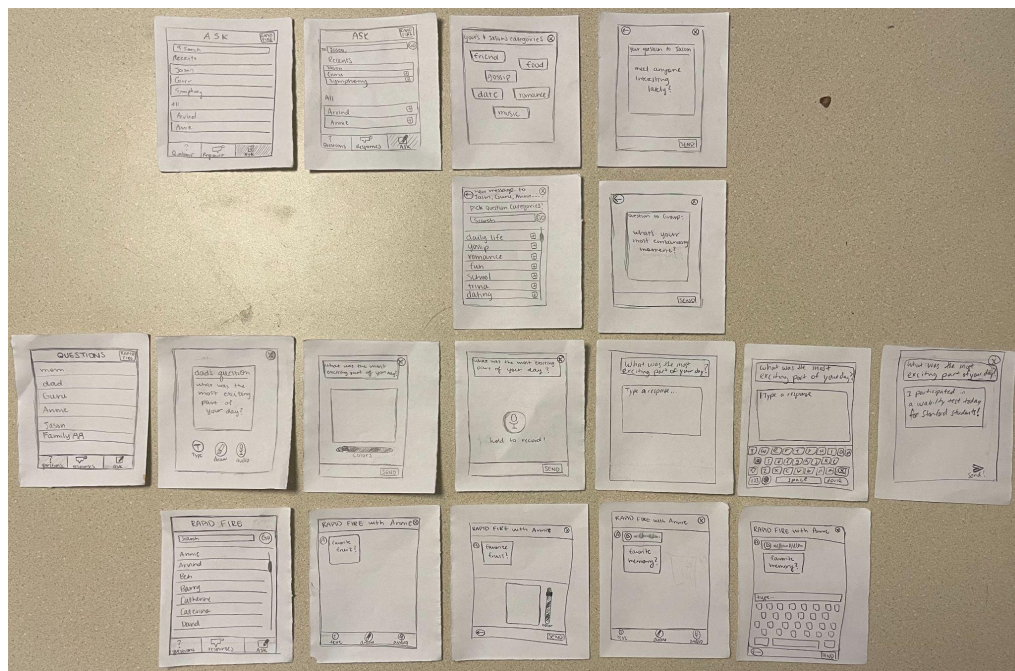


Figure 8: General view of all pages in the low-fi prototype.

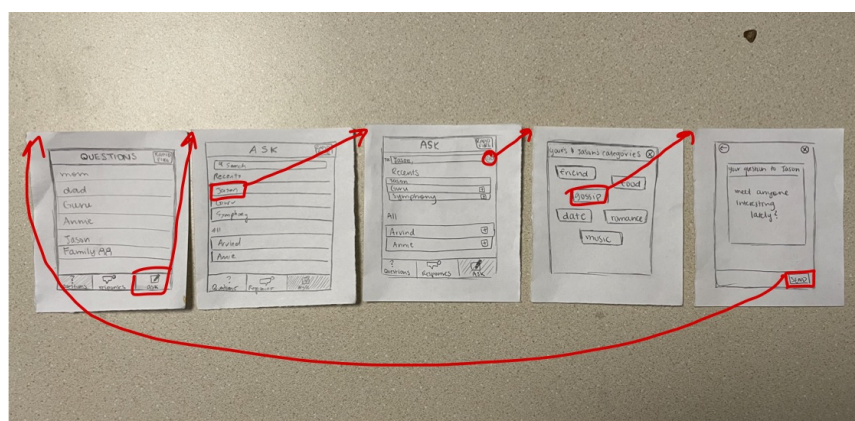


Figure 9 (Simple Task): Check in with my long-distance loved one/friend by sending them a daily question

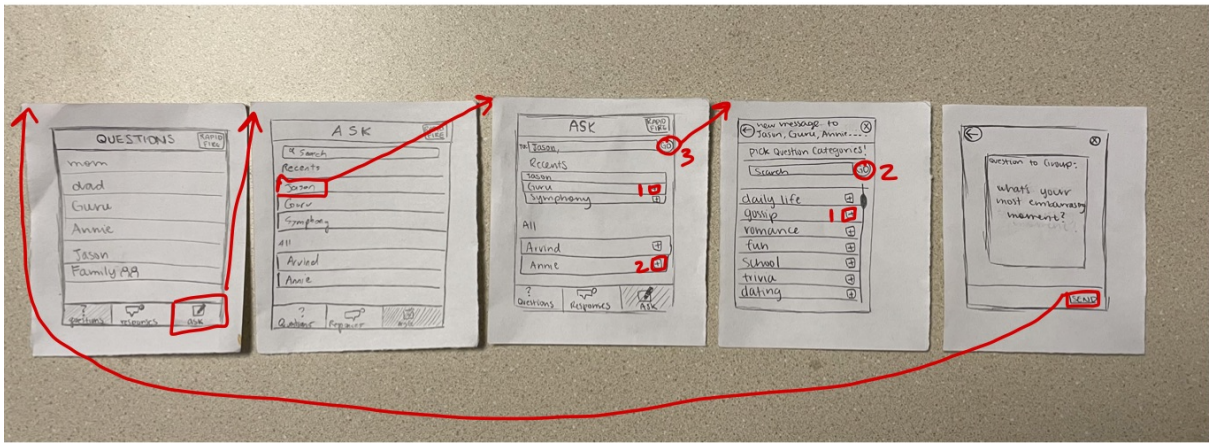


Figure 10 (Simple Task): Review Group Messages to Stay Up-To Date with Long Distance Friend Groups

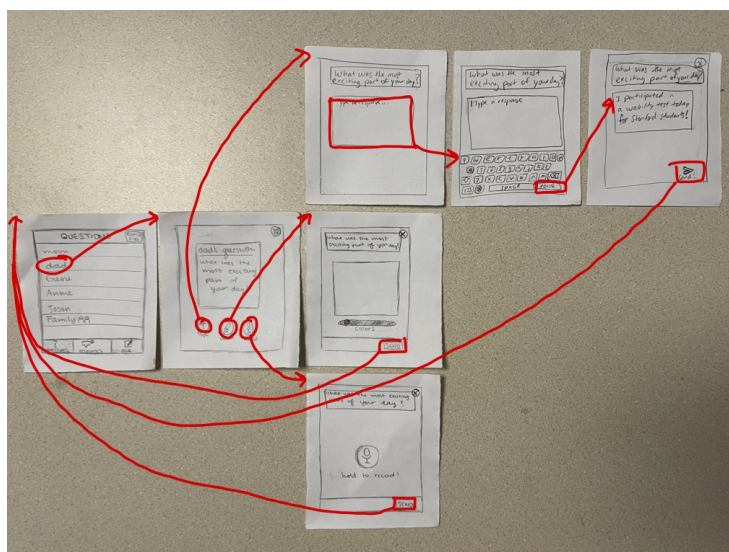


Figure 11 (Moderate Task): Respond to my friend's question with flexibility in creative expression

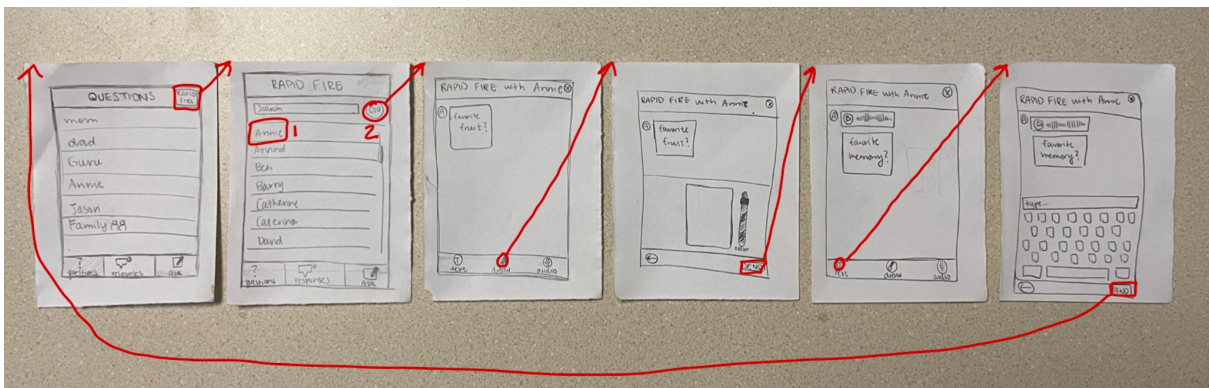


Figure 12 (Advanced Task): Start a rapid-fire session with a friend to go back and forth with deep questions

Major Design Changes: Low-fi to Med-fi

To get feedback on our low-fi prototype, we conducted prototype tests with 3 different participants. Participants were selected by looking for a wide range of backgrounds and experiences; we wanted people who had ample experience in LDRs and others who had ample experience in design.


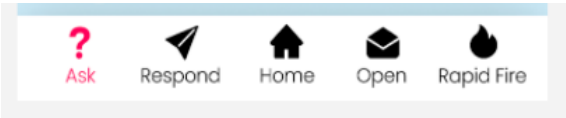
- Participant 1: Olympic athlete from Singapore who has had many experiences traveling abroad and maintaining LDRs.
- Participant 2: Creative Director of the d.school and Lantana RF who has had years of experience with UI and UX design
- Participant 3: VP of Renewable Energy Company who has had many experiences traveling nationwide due to business trips

We received incredibly valuable feedback from our testing. The interface was less intuitive to use than expected. We found our prototype could benefit from more cohesion within section titles and more intuitive names for certain buttons. Some parts of the task flows were confusing or redundant, such as the “go” button for rapid fire being placed next to the search bar (unclear whether the button is to start the session or for the search bar), and the “plus” button needing to be pressed for adding more people to a group despite all the people already being displayed on the list.

Further, we found that many users were searching for certain buttons in the wrong spaces. Their expectation of where certain actionable components would be didn't match our design. Overall, we knew we had to reduce the number of touch points a user had to go through in order to complete tasks as well as integrate design principles such as first-reads and Gestalt's Principles to create a more intuitive interface.

We made the following three primary changes between our low-fi and med-fi prototype to solve these issues.

1. Navigation Bar

Before	After
	

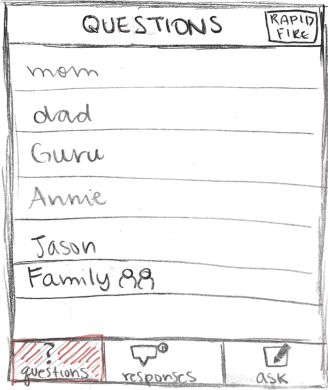

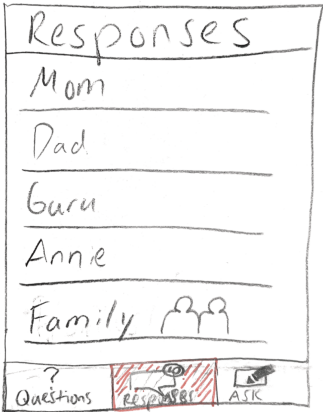
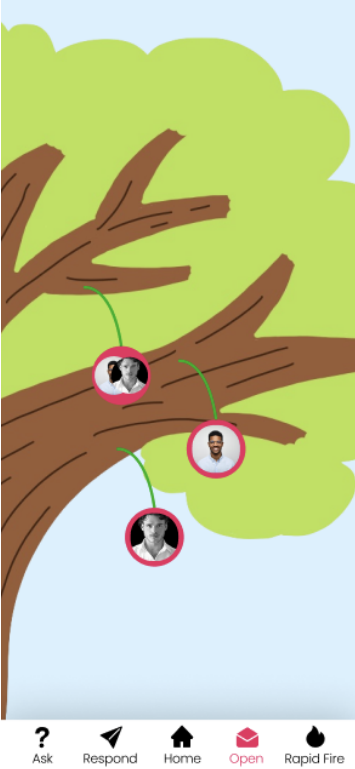
Changes

- The navigation bar went from 3 tabs (questions, responses, ask a new question) to 5 tabs (questions, responses, ask a new question, rapid fire, and home).
- The tab names changed from a mix of nouns/verbs to just verbs ('questions' is now 'respond', 'responses' is now 'open', and 'ask' remained 'ask').

Rationale

- All users expressed confusion with the tab names - it was not clear whether 'questions' meant ask a question or read a question and whether 'responses' meant respond to questions or read responses.
- All users also had a hard time finding the 'rapid fire' button in the upper right corner which affected our usability goal of 'efficiency'. Users also verbally expressed that it was weird having the 'rapid fire' button in the corner rather than the navigation bar.

2. New Questions and Responses

Before	After
	
	

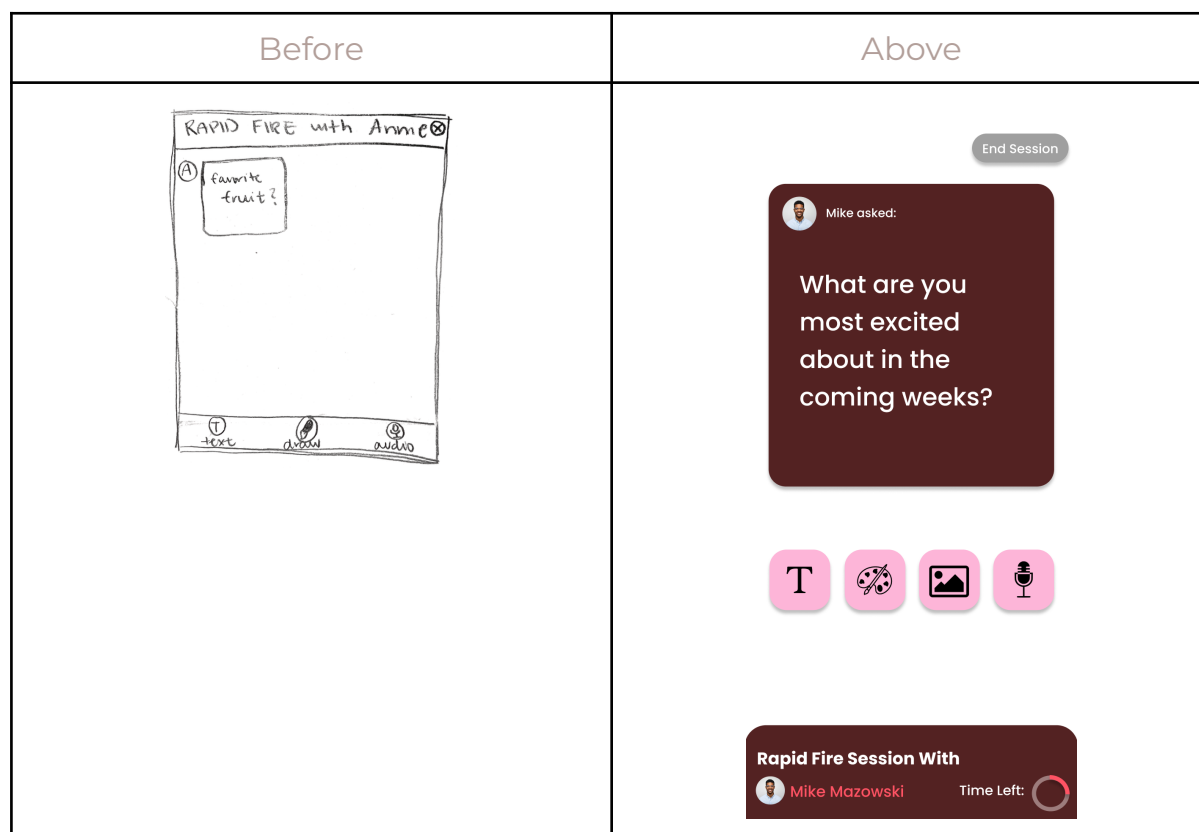
Changes

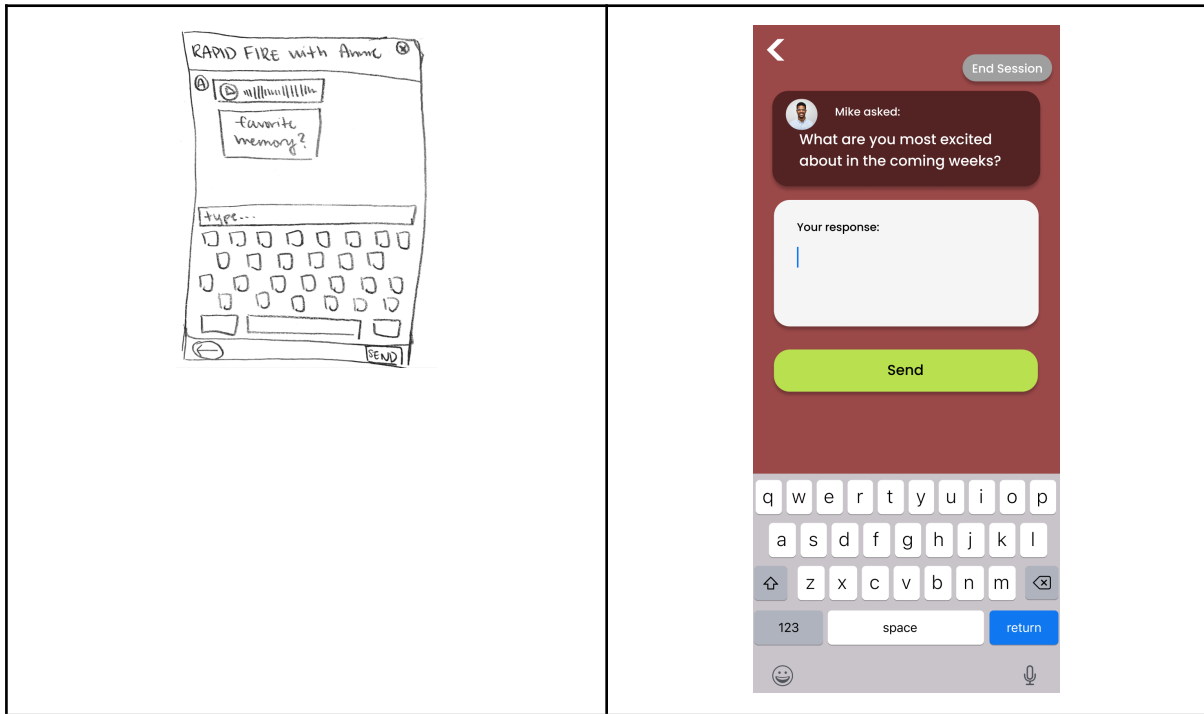
- Instead of presenting new questions and new responses in a list layout, we chose to show the new notifications as user icons (cherries) hanging on a cherry tree
- Instead of the app automatically opening up to 'new questions', we will have users swipe left from a home screen to respond to new questions and swipe right to read new responses

Rationale

- A sentiment echoed by both our Section TA and from our user testing was that our app had an overwhelming 'list' layout. This type of interface made it feel boring and lowered the novelty of our app
- Users 2 and 3 expressed confusion with the 'new questions' screen being the home screen and said it felt unnatural to open right up to new questions, lowering our usability score of 'pleasurable'.
- Our team felt that viewing questions and reading responses were equally important actions that deserved dedicated screens

3. Rapid Fire





Changes

- Instead of having a 'text' or 'chat' style rapid fire, the questions and responses appear as cards and disappear once answered.
- We introduced a timer count-down on the screen when users are answering questions during rapid fire to increase excitement and emphasize the 'rapidness'.

Rationale

- Needfinding interviews found that people have a hard time talking about personal issues over text. Users 1 and 2, Morgan, and section feedback all commented on how 'text' style might feel less personal and prevent people from feeling comfortable answering personal questions.
- User 1 also commented on how she was confused how the rapid fire was different than just texting someone due to the 'chat' style and because there was unlimited time to answer questions which made it less pleasurable for her and lowered our usability goal of 'pleasurable'.
- Morgan also mentioned that we should include some kind of time limit to add more novelty to the rapid fire aspect of our app and differentiate it from texting someone.

Major Design Changes: Med-fi to High-fi

Four heuristic evaluators evaluated our med-fi prototype and collectively found 20 severity $\frac{3}{4}$ violations and 55 severity $\frac{1}{2}$ violations across many violation categories with Consistency & Standards, Error Prevention, and Efficiency of Use being the most notable categories. Below, we will first go through the most notable changes made to our med-fi prototype, and then any other heuristic violations our evaluators identified, and explain our respective fixes that led to our high-fi prototype.

1) Overall UI design

Our evaluators pointed out that the overall UI design of a cherry tree was fun and added to the novelty of our design. However, it took away from the functionality of the app and lacked sophistication which contrasted with our target user group of teens to adults.

With this feedback in mind, we decided to change our UI design of the cherry tree to a more simple and elegant design with gradient colors inspired by our original moodboard below.

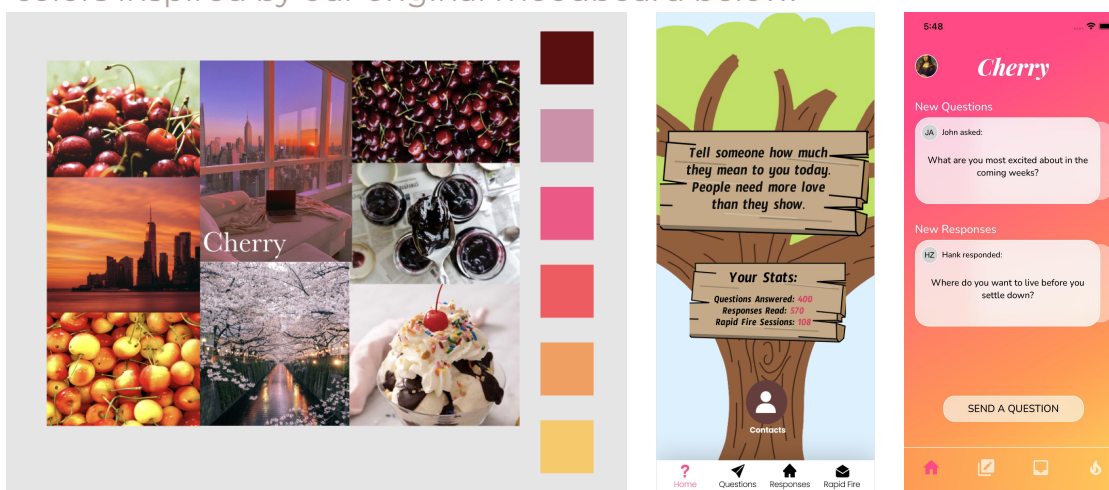


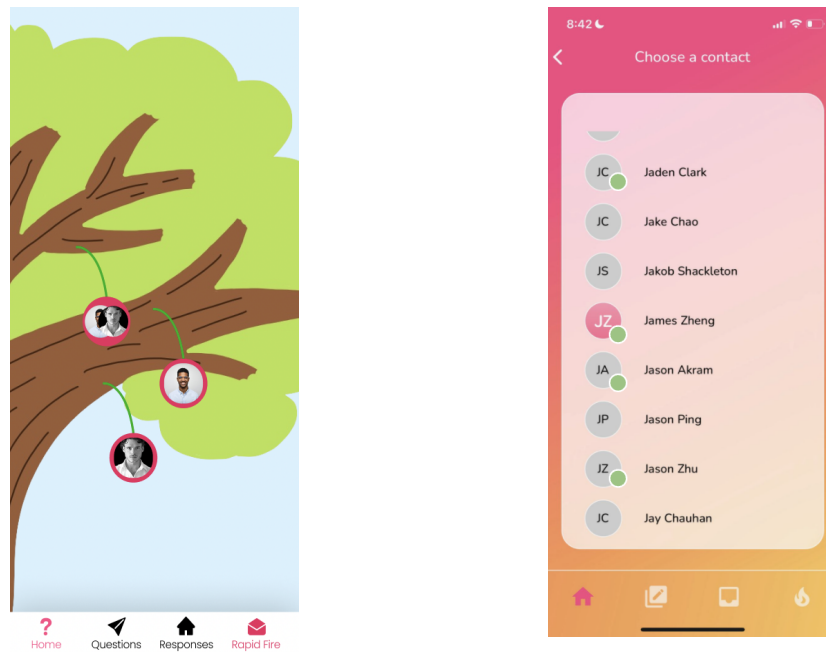
Figure 13: Our moodboard created to reflect our application alongside the changes we made from our med-fi prototype to our high-fi prototype. Most of our design changes were base

After switching the overall design from the metaphorical cherry tree to a color gradient, many of our other heuristic violations got fixed as well. Most notably, our evaluators found many heuristic violations with the question and response pages due to the cherry tree design.

➤ Cherry Tree - Question and Response Pages

a. If a user has many new questions and responses, the cherry tree will become overly cluttered and hard to see and understand and difficult to add new users (*Heuristic 13: Value alignment, Severity 4 and Heuristic 8: Aesthetic and minimalist design, Severity 4*)

b. The cherries only have pictures which may cause users to misidentify the contact and make it hard for visually impaired users to know who they are contacting (*H6: Recognition Rather than Recall / Severity 3*)

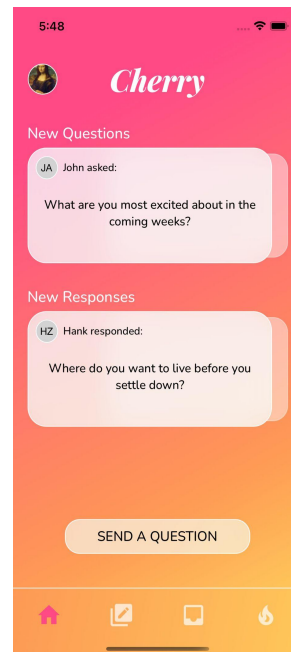


With this feedback in mind, we changed the design of new questions and new responses on the cherry tree to a list format. This way, instead of clicking on cherries to open new questions and responses, users can easily swipe and read through the list, making our app look more professional, and easier for our users to use.

➤ **Homepage and Navigation bar**

Lastly, our evaluators found issues with the overall design of our homepage.

- a. The contacts icon on the homepage is confusing because users may think that they should click on the contacts icon to ask new questions instead of navigating to the questions page on the navigation bar (*Heuristic 5: Error Prevention, Severity 3*)



With this feedback in mind, we completely redesigned the home screen by removing the contacts button and adding the “send a question” button so users can easily access this task and are not confused by other unnecessary buttons. We also added a preview of new questions and new responses so the home screen is not useless and users can easily access the other most important tasks.

Additional Design Changes Based on Heuristic Evaluations

Other improvements were made to our prototype based on violations found by our evaluators and are summarized below.

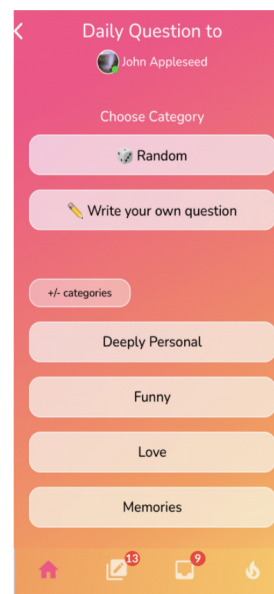
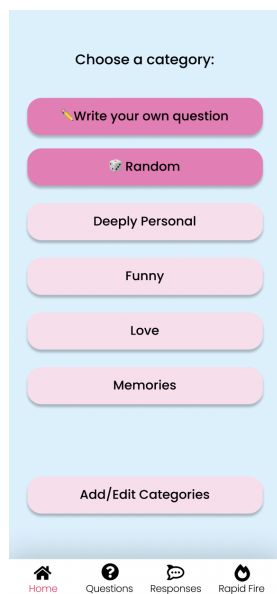
- 1) H1: Visibility of System Status / Severity 3
 There are no notifications on the navigation bar showing new questions so users don't know if there are new questions to respond to
 Fix: Added notifications to the navigation bar for new questions
- 2) H1: Visibility of System Status / Severity 3
 There are no notifications on the navigation bar showing new responses so users don't know if there are new responses to read
 Fix: Added notifications to the navigation bar for new responses



3) H6: Recognition Rather Than Recall / Severity 3

After picking the recipient, the recipient's name does not appear on the 'picking categories' page, so users may forget who they are sending a question to.

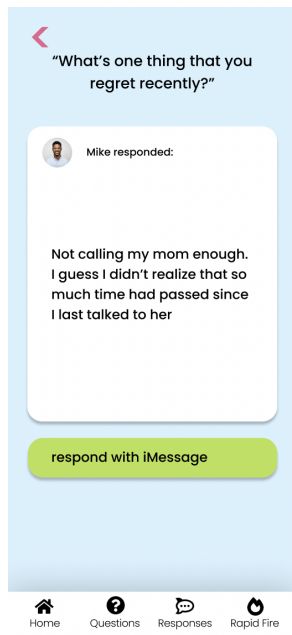
Fix: add a header to the categories page that includes the recipient's name and icon so users can remember who they are sending questions to



4) H3: User Control and Freedom / Severity 3

The 'Respond with iMessage' button is confusing, has inconsistent capitalization, and isolates users to just iPhone users

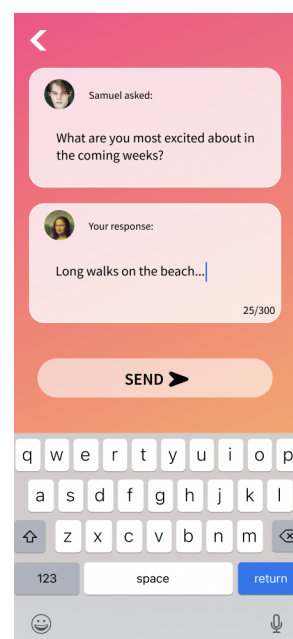
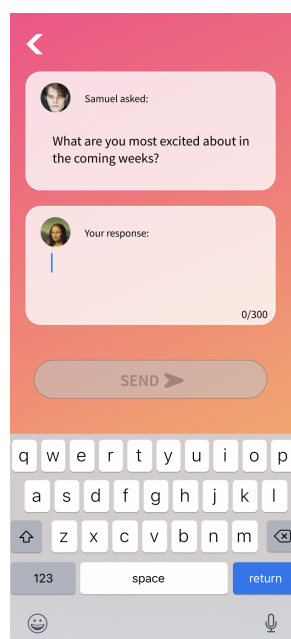
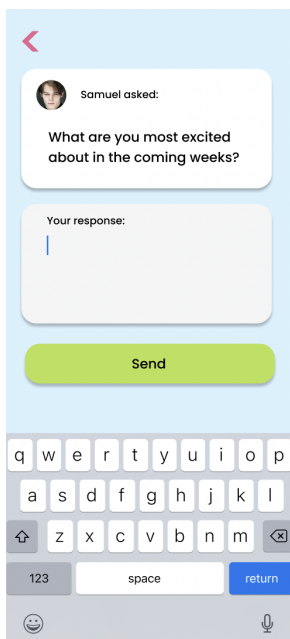
Fix: Change the 'Respond with iMessage' button to a 'share' button that automatically will send the question to the recipient's number so users are more clear about what the button means and the user pool is expanded to anyone on the app.



5) H5: Error Prevention / Severity 3

On certain screens, send buttons are pushable before the user has written anything so there is a possibility of sending nothing

Fix: Make the 'send' buttons shaded so it is clear to users that they cannot press the send buttons until they have created something to send.



6) H4: Consistency & Standards / Severity 3

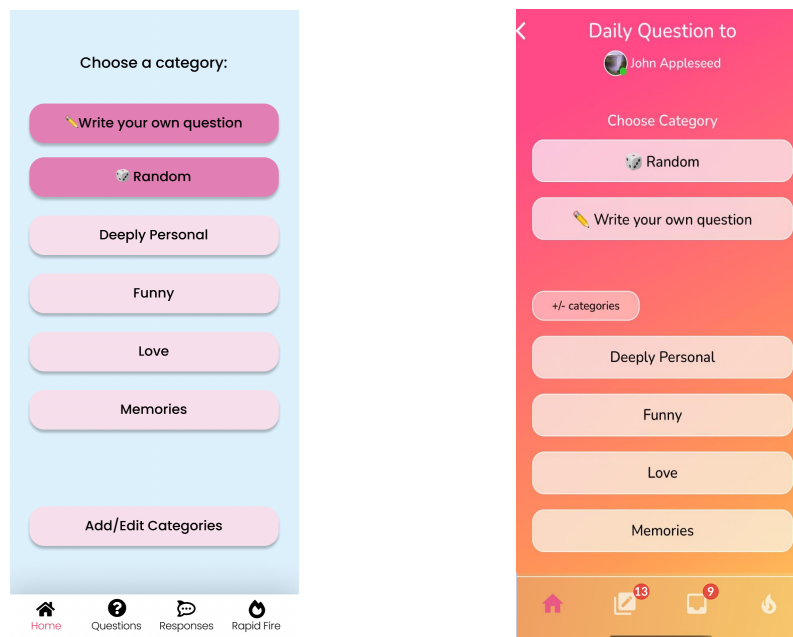
The 'go back' button is not consistently placed throughout the app which may be visually annoying for users

Fix: We made sure to place the 'go back' buttons consistently throughout the app

7) H7: Flexibility and Efficiency of Use / Severity 3

When choosing question categories, the add/edit button is too similar to the category buttons and users may have hard time finding it

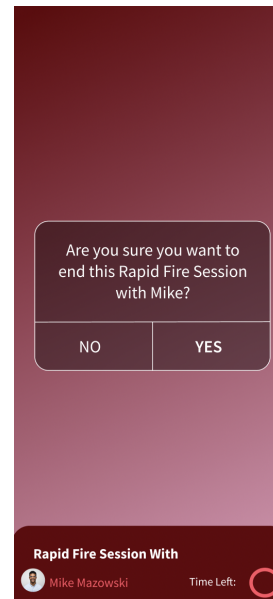
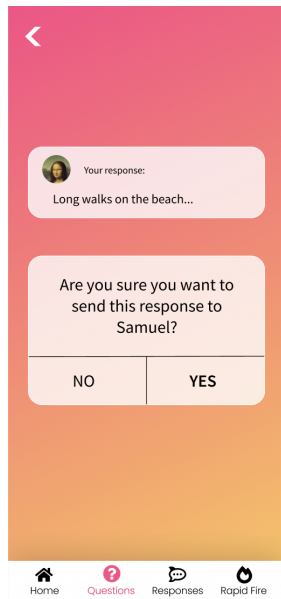
Fix: We changed the size, shape, place and transparency of the add/edit button so it is more obvious to users that the button is different from the category buttons.



8) H5: Error pRevention / Severity 3

During Rapid Fire Sessions, users can accidentally press send or 'end session' without meaning to

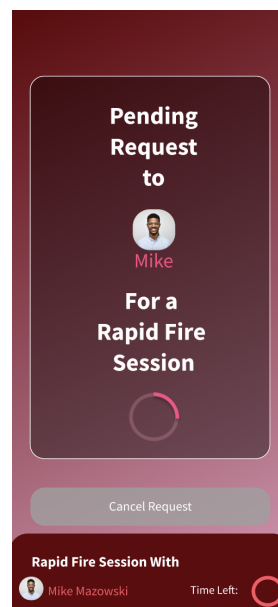
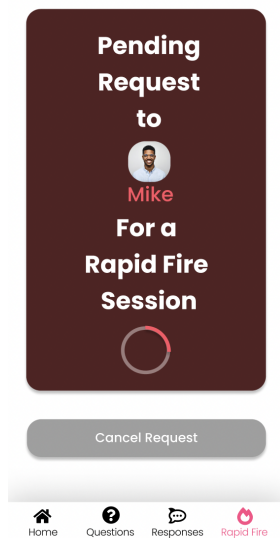
Fix: Add confirmation messages so users can confirm that they want to make important actions such as sending an answer or ending a rapid fire session.



9) H5: Error Prevention / Severity 3

Users can accidentally leave Rapid Fire Sessions if they accidentally click on the navigation bar

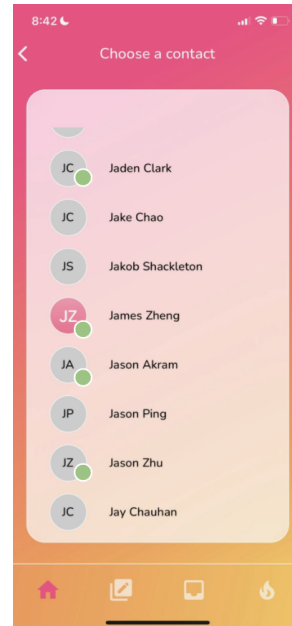
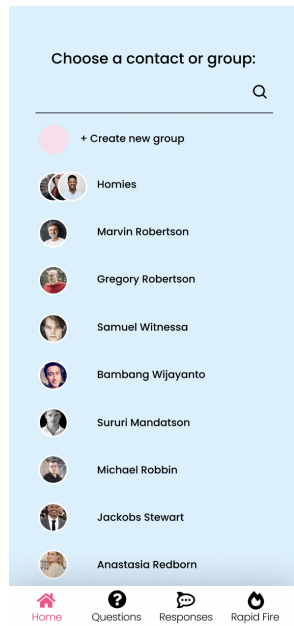
Fix: Remove the navigation bar as soon as users enter the rapid fire session to make it impossible to leave without hitting 'end session'.



10) H7: Flexibility and Efficiency of Use / Severity 3

Contacts are not sorted so users will have a hard time finding specific people

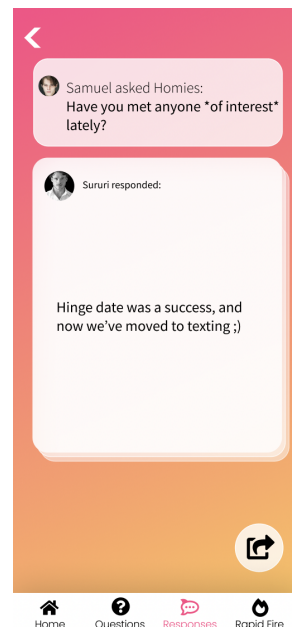
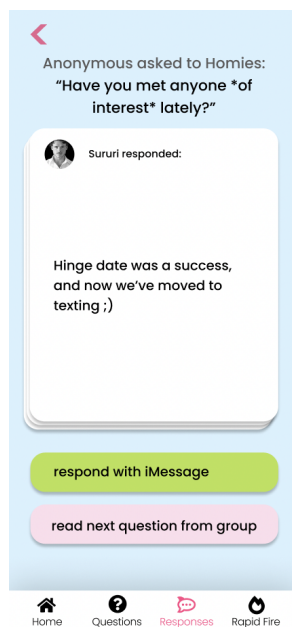
Fix: Organize contacts in alphabetical order so users can more easily search for specific people.



11) H3: User Control and Freedom / Severity 3

When reading group chat questions and responses, there is not way to go back and look at previous questions or responses

Fix: Remove the 'read next response' button and instead make all responses or questions swipeable forwards and backwards so users can easily look at all questions and answers.

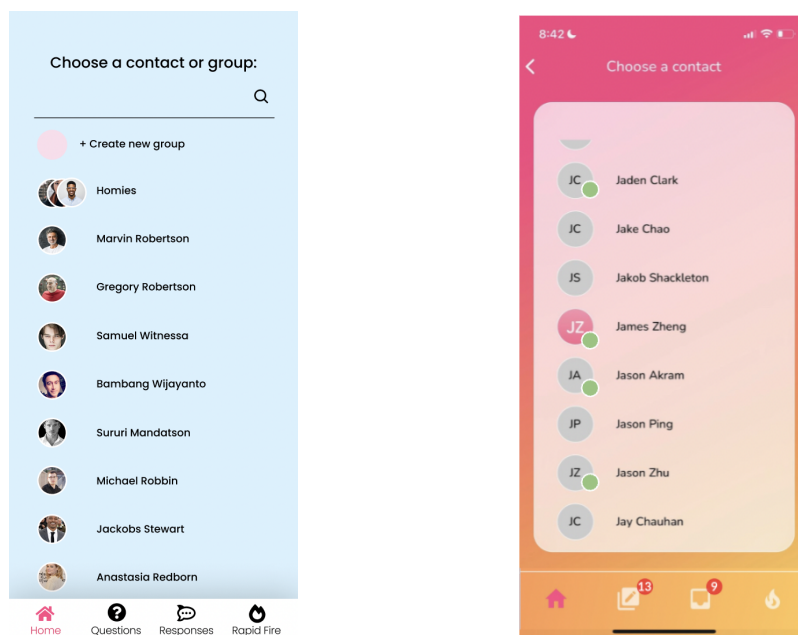


12) H7: Flexibility and Efficiency of Use / Severity 3

Users have no way of checking contact status other than going

through the entire Rapid Fire flow

Fix: Make online/offline contact status visible in the regular contacts list as well so users can easily see who is online or offline.



13) H7: Flexibility and Efficiency of Use / Severity 3

If users have a lot of question categories, it may be cumbersome to scroll through all of them

Fix: Have the question categories list sorted by frequency so the user's most frequently used categories will appear first and be easy to select.

14) H13: Value Alignment / Severity 3

There is no way for the user to block users from asking questions or initiating Rapid Fire Sessions

Not Fixed: Our group decided not to implement this function because our prototype actually pulled contacts directly from the user's phone and we would not have enough time in one week to actually implement the block function. We also felt that it was out of the scope of our prototype because it was not part of our three tasks. However, any messaging app should always have block functionality and if blocking was part of our three tasks, we would have hard coded the block function.

15) H13: Value Alignment / Severity 3

Allowing users to respond anonymously in group chats creates distrust within the group and doesn't further the value proposition of deepening relationships

Fix: Our group completely agreed with this statement, and took the

anonymous function out so users can build deeper relationships within their group chats.

16) H5: Error Prevention / Severity 3

After sending a response, the recipient's cherry still remains on the cherry tree so users might be confused as to whether their response actually was sent

Fix: This violation was due to an error in our figma prototype so we just made sure to implement this fix on the final high-fi prototype.

Values in Design

Our design encodes **meaningful connection** by generating insightful, personal questions, we aim to foster meaningful connection between our users. Another value is **excitement**: we want users to feel adrenaline using our app, so we'll make the interface fun to use and generate interesting and risqué questions. Finally, we focus on **safety**: we want our app to offer a safe space for vulnerable conversations. None of our values inherently contradict. Meaningful connection is the crux of our solution, and excitement and safety are both features that are both essential for any ethical app design and are not mutually exclusive.

Our value of meaningful connection is the core of our app. From automatically pulling from one's already existing connections via their phone's contacts, to the numerous categories of deep and personal topics for users to choose from, to our rapid-fire mode of going back and forth to also encourage prolonged conversation, every aspect of our application is centered around this value.

To encode excitement, we purposely implemented a bright, colorful color scheme to emphasize the stimulating and engaging nature of the app. Further, our rapid-fire mode's time limit adds an extra sense of gamification and excitement, holding users to a fun sense of time pressure to go back and forth, while the summary mode further encourages users to continue in the mode for as long as possible while still enjoyable. Finally, in allowing users multiple mediums of creative expression, we let our users have fun in responding to their closed ones and help solidify the idea that keeping up with people should never be a burden, but rather fun and exciting.

To encode safety, we implemented block features to ensure users could fully block and delete information about other users that they want to fully separate themselves from. Additionally, by having our contacts page directly pull and regularly update from the phone's already existing contact list, any pre-existing blocked contacts will remain blocked on our app as well. All pre-generated questions within our categories were hand-chosen to ensure none were too intrusive nor offensive. Further, all

responses sent back and forth are encrypted to ensure user privacy. Finally, we first ensured that our app's colors matched the value too. We included a subtle gradient without harsh tones nor large, flashy components, for our main page. This was in effort to assure a welcoming and appealing interface that was easy on the eyes. For our rapid-fire mode, we wanted to emphasize a sense of novelty and intimacy, and as such we made sure to include a darker red color scheme to match this mood.

Final Prototype Implementation

To build the prototype, we used VSCode to write code, Expo to run our code in an iOS simulator on phones and laptops, Github to collaborate on code, and various third-party packages to help with implementing certain features (sketching, animations, etc.) of the app. We built the app in React Native for easy deployment on both iOS and Android devices. The tools were instrumental in helping us develop and test the prototype.

However, we still faced limitations with the tools. Because setting up real communication between users would require handling real user accounts and onboarding, we decided to fake communication with other users for the purposes of the prototype (the reply function when reading responses is the only real communication). This also meant that the back-and-forth question and answer sending in the Rapid Fire mode was also faked. Additionally, voice recording is notoriously difficult to implement in Expo, so we made fake interfaces and animations to make it appear as if the voice recording feature was functional. We also hard-coded our question bank, since there was no API to pull questions from that fit our needs.

Summary & Next Steps

Long-distance relationships are hard, and while they're not the optimal situation for most, they're near inevitable due to unpredictable circumstances or simply diverging paths of life. But, just because they're difficult doesn't mean they have to be impossible. Throughout this quarter we focused our efforts to build Cherry, an application to ease the life transition of entering long-distance relationships to help users stay close and connected with their loved ones on a daily basis. Along the way, we had a tremendous amount of fun seeing our vision come to life while meeting phenomenal people and learning invaluable takeaways.

Our biggest takeaway was learning how the **easiest way an idea fails is failing to understand the problem space**. During our initial brainstorming sessions, we were all so quick to try and walk into the needfinding with preset solutions that we thought could be valuable. Yet,

as we progressed through our needfinding process, we found that nearly every single one of our preconceived notions of what the solution space may be were all found to be false assumptions. In fact, by “walking in blind” with nothing but the intent to just learn about user problems instead of trying to validate our own assumptions, we were much more successful in better understanding the inner motives and perspectives of our users.

Our other major takeaway was that **rapid reiteration of prototyping is crucial to a successful solution**. In every step of the way of our prototyping, we were quick to realize just how many changes and violations we needed to fix in order to create a more intuitive interface. Yet, these errors would have never been found had we not performed consistent user testing early on in our process. Conducting multiple prototypes and constantly reiterating along a somewhat Agile methodology was crucial in ensuring we were given insights to keep us on the right track to build off of rather than having to do a complete overhaul of our application.

In retrospect, if there was more time, we would have more robustly built out our app to replace the Wizard-of-Oz and hard-coded aspects. We also would have explored more design options for various features of the app (background, buttons, text, icons, etc.) and test out our designs more thoroughly before implementing them.

Overall, this entire quarter has certainly been a phenomenal learning journey for all of us. From the numerous all-nighters to the last-minute grinds, the quarter certainly has been challenging, but along the way we all learned vital skills in design, user experience, and rapid prototyping that we’ve never been taught before in any other CS class here at Stanford.