Team 16

Group Members:

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GR0 Problem Statement:

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Nearly one-third of all seniors live by themselves, senior isolation is common and dangerous both mentally and physically. The elderly would like a simple way to connect with other elders that have similar interests and hobbies. They have a difficult time using popular existing messaging apps like WhatsApp and friend-finder apps like BumbleBFF. These apps are primarily developed for a younger audience with different capabilities than many elders have. Many elders have visual impairments and have trouble reading the small fonts these apps typically use. Similarly, unfamiliar and complex settings and menu systems are confusing for elders to navigate. Having more apps for different functionalities make it difficult for an elder to familiarize themselves with each specific UI.

GR1 Project Proposal and Analysis:

Updated Problem statement:

Some novice messaging app users would like a simple way to connect with people that have similar interests and hobbies. They have a difficult time using some of the features in popular existing messaging apps like WhatsApp and friend-finder apps like BumbleBFF. These apps are developed for audiences with more experience using modern technologies, utilizing unfamiliar icons and metaphors. The users also have trouble navigating through unfamiliar/complex settings and menu systems. Having more apps for different functionalities make it difficult for these users to familiarize themselves with each specific UI.

Interview 1:

Observations

Anna still attends her church meetings every week from home. She told me one of her goals is to still feel the connection she used to have with her fellow church attendees even though she cannot currently see them in person. She showed me how they meet and how they communicate with each other when not on Zoom. Since the Zoom meeting is filled with a lot of people it is hard to have a conversation. Therefore, she used her WhatsApp account to text with a group of her friends that she met at church. Someone set the group up for her and added her. Surprisingly, she does not know how to set up her own group chat. All the group chats she is currently in are chats that others have set up for her and she just starts communicating through it. She sends health advice or articles to each other. They also send each other messages that encourage each other throughout the day. On her Facebook Messenger account she mostly messages her distant family in private conversations.

Interview

Anna is a 47-year-old female. She has been married for 25 years and has 2 kids. She is self-employed and currently cleans people's homes. She moved to this country when she was 19 years old, so English is her second language. It is also surprising that she sets her phone to English in the settings instead of her native language. When asked why she said it is because she does not understand the technical words in the interface when it's in her native tongue.

She mostly uses text messaging applications to talk to friends and family. The apps she mostly uses are Facebook Messenger and WhatsApp. According to her screen time she uses these apps about 10 hours a week. She uses Facebook messenger mostly for talking to family that lives in another country and she uses WhatsApp to talk to friends she has made at her church. In the past she would go to larger gatherings and meet new people there that shared the same faith as her. However, due to the pandemic it has been difficult to interact with and meet new people from home. She would like a way to find people who are of the same faith and connect with them these days. When asked why she uses WhatsApp over Facebook for church friends she said others would set up groups chats so she would just go along with it. Some of the current problems with these apps she deals with are mostly when things are not working. Specifically, audio not being heard in the apps while calling and the app freezing up.

Interview 2:

Observation

Scott plays a lot of mobile games, he is so addictive with a mobile game called War Wings recently. War Wings is a competitive multiplayer game, for each round of competition there are 10 players who will be separated into two teams, and if your teammate is from the same squad you will have a bonus for each round. He used to play other games, but he just got into this game so deeply and he has put a lot of effort and money into the game.

When I observed him while he was playing the game, I noticed that he used the poorly built-in game chat room with his squad, but the built-in game chat only supported the basic feature of chat, and only limited information and text allowed to be sent in chat room.

Interview

Scott is a 53-year-old male who is a big fan of Android phones, especially Samsung. He changed his cellphone in an average of two years, so he does not have a very hard time with new technology, but sometimes he gets confused with app features, like some features he would never use, such as manually clear cache. He often keeps in touch with his family by phone call or video call, he does not have any social networking app, but he would like to have one and try it.

His goal is to be able to communicate with his teammates with better connection, because the in game chat room has no notification if any teammates replied, and also if there are new messages will push that old reply message too far away, the other player would never see the reply when he login back next time. Scott is also thinking about if there is a feature that he can share their location, so if any teammates are around the other teammate, they may like to have a meeting offline.

Interview 3:

Observation

Caroline uses chat apps on a daily basis. She told me one of her goals is to stay connected with her friends that are born and raised in the United States. So, she showed me her usual routine on how she had always communicated with her friend and if any of the process makes her feel uncomfortable.

When I observed her routines, I found that Caroline only uses one app which is Facebook Messenger. She told me that it is because there are so many apps out there and her friends use different apps, so they just picked the most widely used. I asked if she ever thought about using another app that her friends are using. She said most of them have too many functionalities that are unnecessary. She showed me all the group chats she has, and she said none of the group chats are created by her. When I asked if she knows how to create one, surprisingly, she struggled a while before finding the correct icon to click for. She said she does not use this too often since she mostly uses WeChat which is a Chinese app and it is pretty different in choice of icon for representing functions.

Interview

Caroline is a 21-year-old female and an undergraduate student at UIC. Caroline moved to the United States from China 6 years ago and her English is not very good due to the fact that it is her second language. She has tried a lot of chat apps and found out the fact that most of the apps will have many features she will never use. When asked why she does not use those features, she said it is because all she wanted to use the app for is to have an easier way to communicate with her friends.

There are three things that Caroline found difficult when using the apps that currently exist in the Market. First thing is that different apps use different icons for similar tasks. For example, creating group chat is hidden under the pen icon in Facebook Messenger while some other app uses the plus sign to represent. Secondly, she told me that the list for contacts are hard to find. Most popular apps like Facebook Messenger or WhatsApp all have their contact list hidden under some button instead of showing all the existing contacts in a tab or page that are easily accessible. Lastly, almost every app has features that take up a big portion of the interface and they really distract her from her main purpose which is chatting with her friends.

Interview 4:

Observation

Jorge told me one of his goals is to find more friends around his age that share similar interests. Because of social distancing measures, he is open to trying new apps to do so. He showed me how he would try to meet someone using apps found on the Google Play Store and the concerns and problems he has when using them.

I helped Jorge pick two popular apps. The first one was WhatsApp which Jorge had heard of but never used. He told me Facebook was the only social media platform he used and was somewhat familiar with. He went through the set up and uploaded a picture of himself. He liked that some of his contacts and friends were already on the app and likened it to Facebook Messenger in that way, but he did not see how he could meet new friends.

The second app was Bumble which he seemed interested in but had not heard of. Jorge went through the sign-up for Bumble and when first prompted for personal information, he expressed concern over his privacy. I told him he could share as much data with these apps as he would like and so he chose to skip some of the information it asked of you such as religion and zodiac sign. We moved onto the swiping and choosing friends. Jorge enjoyed commenting on every person and he seemed to like the simplicity of the swiping process. But since he did not get any matches immediately, there was nothing left for him to do once they ran out.

Interview

Jorge is a 58-year-old male. He is currently happy with his work to social life ratio; however, he says he is nearing retirement age and could see meeting new people as becoming more of a problem for him in the future. He says if he could retire now, he would spend his day relaxing with movies, board/card games, and cooking, but also doing exercises like jogging and fishing.

He has a handful of close friends, most of which he has known since early-adulthood while living in Chicago. It is difficult to keep close contact with these friends because over the years they have moved away, some to other states in the U.S. and some to other countries like Mexico. Surprisingly, they do not communicate much over video chat or even phone and have to make the effort to meet up in person every

few years in order to catch up. Jorge suggested a game app to promote connectivity for him and his current friends.

Jorge is a sociable man who wants to meet and connect with new friends using phone apps, but he has to have the app express clear and easy steps for him to do so. He became confused when WhatsApp assumed that he would know to add Groups to find friends. Also, Jorge wants to have some kind of interactivity within the app such as gaming so he could connect with his old and new friends. When Bumble didn't have any activity to do after the set-up, he quickly lost interest in the app.

Interview 5:

Observation:

Garima uses WhatsApp everyday in order to stay connected to her family, especially her son abroad. She walked me through her routine which was not much, because of no interactions or opportunity for any kind of yoga classes all her contact is with her husband which she can just call since they are still in the same country but son being abroad they video call almost everyday for at least 15 mins. Her main goal is to have an app that provides no barriers whatsoever in this routine, she wants to be able to at least connect with her family through the apps texting and video calling feature without any hindrance such as not being able to fix video calls running in the background or the camera flipping issue.

I also asked her if she has ever used any other alternatives. Upon decline, I observed her through the process of downloading google hangouts and setting it up, but at the setup screen she didn't remember her email or passwords and had struggled even fixing forgotten passwords after I helped her find the email at first. Eventually I walked her through the whole process because she had lost all interest and just felt bad about not being able to do these tasks which are simple enough for almost everyone she knows around her.

Finally when she tried to use the UI of Google hangouts to connect to her even she was more confused because and didn't really understand the icons as well and was really content on using WhatsApp even though at times that app causes her trouble too but at least after so much use she was coming to terms with it.

Interview:

Garima is a 55-year-old-female living in India. Been married for 24 years and has 1 child. She does not work and is a housewife. Her husband lives in a different state and is only home on holidays. Since her child left for Undergraduate and further studies in Germany, she has been mostly alone apart from the holiday time. She was brought up in a lower class family, so she was studying in a government school where English was never used as a medium to converse in, which causes difficulty in conversing with someone, which makes her a little nervous whenever she goes out with any of her family members. This is one of the main reasons she does not go out or do anything when she is alone. Her daily routine now is just to watch some television, play a few games on her iPad, talk to her son and husband. So, because of this reason making friends or finding interest groups is an option she does not even bother thinking about. Apart from family her only interactions are with her neighbors who have turned out to be friends but only used to meet 2-3 times a week for 2 hours max and once a week yoga class in her neighborhood. She can read and understand basic English hence her phone is set in US English rather than her native language which is according to her difficulty to read at that age, specially the technical terms are hard to read and understand.

Garima mostly uses text messaging applications to talk to family. The apps she mostly uses for this purpose is WhatsApp. She only has a few people and 2 family groups in her app in which she connects with her family be it living in another country or in the same but at a relatively far distance from her home. Pandemic has made it worse for her since she cannot even meet her neighbor friends. She wanted to create group chats with them as well but she was not able to do it herself, always someone else has to set it up for her. Some of the current problems in WhatsApp she deals with is not able to navigate when during a video call accidently clicks the home button and the call screen disappear rather then even going to the Picture-In-Picture Mode, and she is rarely able to get that video screen back even though the call is still on. Even smaller details like flipping the camera during call and then turning it back to the front camera or adding anyone to the existing call is also troublesome. After almost a year of constant talking to her son on video calls this problem still persists. She also said all she wants is first an app to at least help her connect with her family without her being so frustrated about not being able to even navigate and do small things in the app and secondly if at least there could be something simple online which could her connect to people in a few interest groups or something where everyone prefers speaking the native language.

User Classes:

- Novice messaging app users.
- Frequent smartphone users that are familiar with basic phone features.
- Users who have problems learning new technologies.
- English-language learners.

User Goals and Potential Problems:

1. During the interview, we found out that users Scott and Jorge want gaming functionality in their chat apps. Contrastly, Caroline wants to have a platform that is dedicated for communication due to the problem that could potentially come up which is that apps having features that are unnecessary which causes distraction and decreases efficiency.
2. We also found that Anna and Jorge want to meet new people who share some common interests. However, they have trouble learning features they've never used beforehand.
3. Anna, Caroline, Jorge and Garima also want to meet new people but expressed a concern for meeting in-person during the coronavirus pandemic.
4. Garima and Caroline want to connect to their existing friends. However, they had difficulty setting up their own group chat in apps they frequently use because of unfamiliar icons and confusing metaphors.

Conclusion:

The main users seen in the interviews were users who have problems learning new messaging app interfaces due to the fact that they are either not familiar with English or inexperienced in new technologies or chat apps. Some of the goals found were that users wanted to connect with new people and old friends and family through text and games using a simpler messaging platform that is less complicated and confusing. Some problems associated with these goals are learning new features, navigating through the existing settings, learning new technologies in general, and staying connected during the current pandemic.

GR2 Design:

Scenario:

Bob is a 55-year-old from Guatemala who is now living in the United States. He frequently uses his smartphone to call his family, but does not use it for much else. He wants to message his existing friends without getting distracted by fancy features. He is good at chess, wants to find challenging opponents. He also wants to be able to meet new people who are interested in chess to discuss different strategies.

Bob has difficulty seeing and understanding the English language; Bob notices his friend Bill also has the "Temp" app and wants to message him. The app has a large icon for the chat feature so it's easy for him to find it and start a chat with Bill. Bill told Bob if he can find someone new to join their chess event this weekend. Bob then goes to the discover tab to find some new members who are Interested in chess. Bob invites the new member into the group chat.

Individual Design Sketches:

[Varun's Sketches](#)

[Jason Sketch](#)

[Hongcheng Sketch](#)

[Christian's Sketches](#)

[Emiliano's Sketches](#)

Group Designs:

:

<u>The Good</u>:

The block UI of the applications' home screen contains all the functionalities that help in fulfilling the requirements of the users. Each icon has a text attached to it in order to remove confusion in understanding the metaphors for each purpose.

In this way, the app removes the recall aspect as a user does not have to remember. This promotes learnability while not compromising the safety aspect by minimizing the probability of *Slip.*

<u>The Bad</u>:

In order to focus more on the learnability aspect, efficiency has been compromised in some ways. To achieve any goal users will always have to navigate back to the home screen, rather than having integrated options within other windows. For example, if a user has to look up how to work through the create group feature, they will have to navigate back to home screen, and go through the 'HELP' option, since there is not a help functionality on the screen which opens upon clicking on 'create group'.

The Good:

The UI design built around the Direct Manipulation of icons promotes learnability. Because every command is iconized the user has a graphic that they recognize for their next goal.

If the user misclicks on the small screen, they can easily return to the main menu from any of the other submenus. This lets a user undo an unwanted action and this is important for the safety of a wearable device since you can easily click the wrong thing.

The Bad:

A small screen design limits features, such as typing and settings. There are no settings in a small screen design, the user would not be able to modify his font size or edit user profile. The user must search for these common features and realize they are missing. The learn-by-doing process is compromised when the user's goal does not exist.

There is no search bar when the user is selecting friends into his group, so the user may need to browse all his contacts to add particular friends into the group, this may reduce efficiency.

Sketch 3

The Good:

The sequential design of the UI promotes learnability. At every step, the Audio Assistant requests a command from the user so there is never any confusion about the task the user is focused on at the moment.

In terms of Safety, the UI handles misspoken words or phrases as incorrect commands. The user would simply have to repeat themselves if they misspoke or correct themselves if they are beyond the scope of the dialog options.
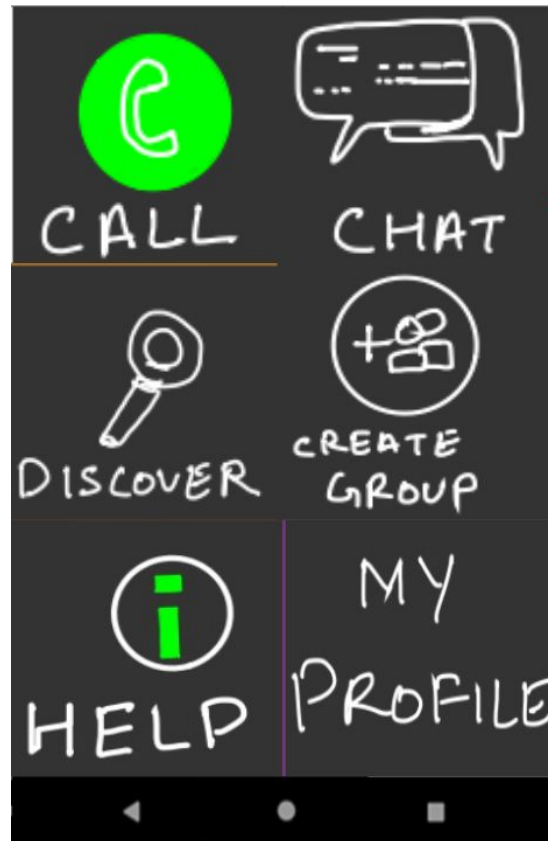
The Bad:

Looking at the efficiency of this UI design, the user has to wait for the voice assistant to complete what it's saying. So when the user is searching for new friends they have to listen to every search result before they are able to send a friend request. The fact that we provided a GUI makes this less of a problem, but if the user uses mainly the voice command feature, the efficiency will be really low.

The learnability of this UI has a small problem since it mainly relies on recall. The user needs to know the correct words to say in order to say commands. They also need to remember the names of the people that were found in the results to send a message.
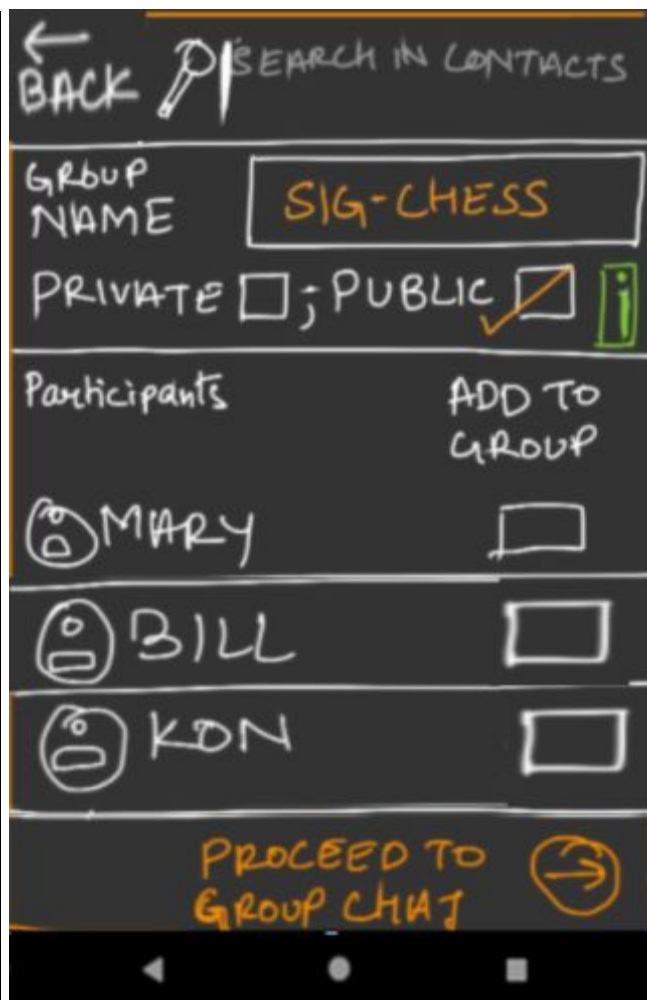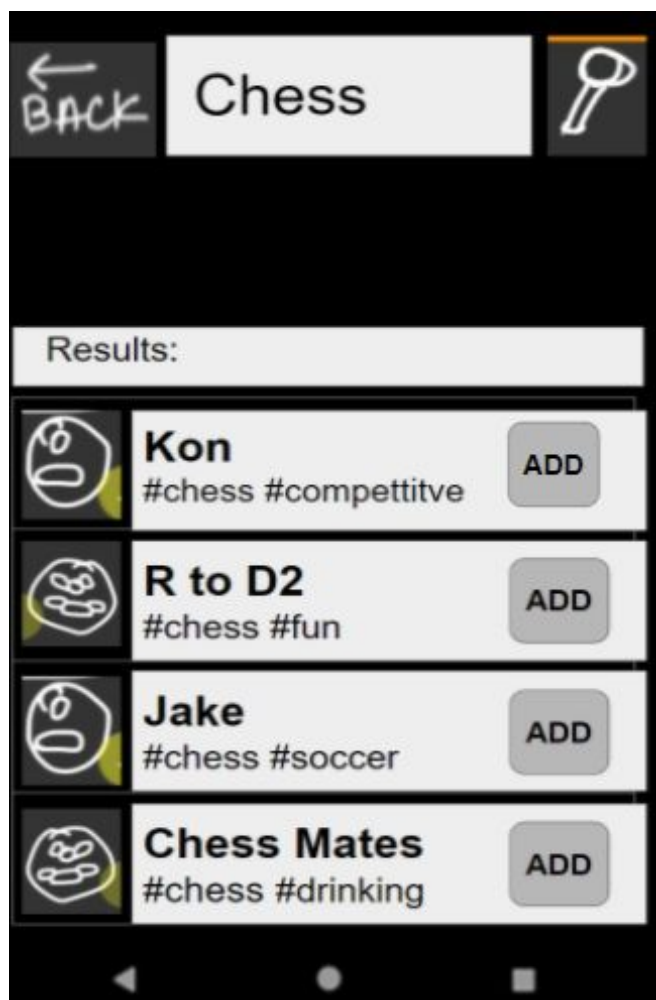
The safety of the UI can have problems when interacting with friends that have difficult to pronounce names. The user might say it one way but the voice assistant wouldn't be able to identify it if that's not how it's programmed to identify it.
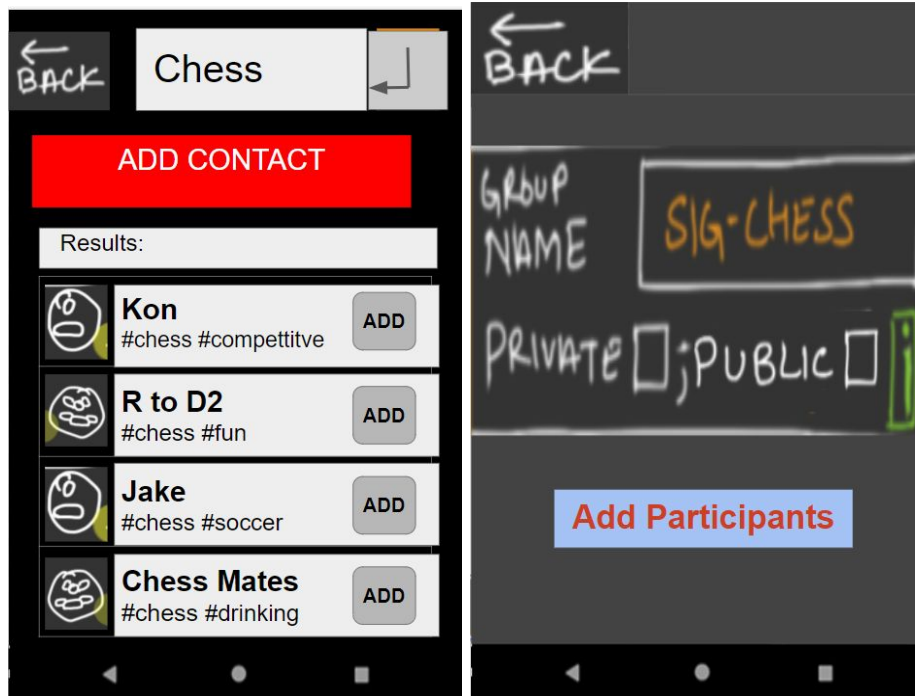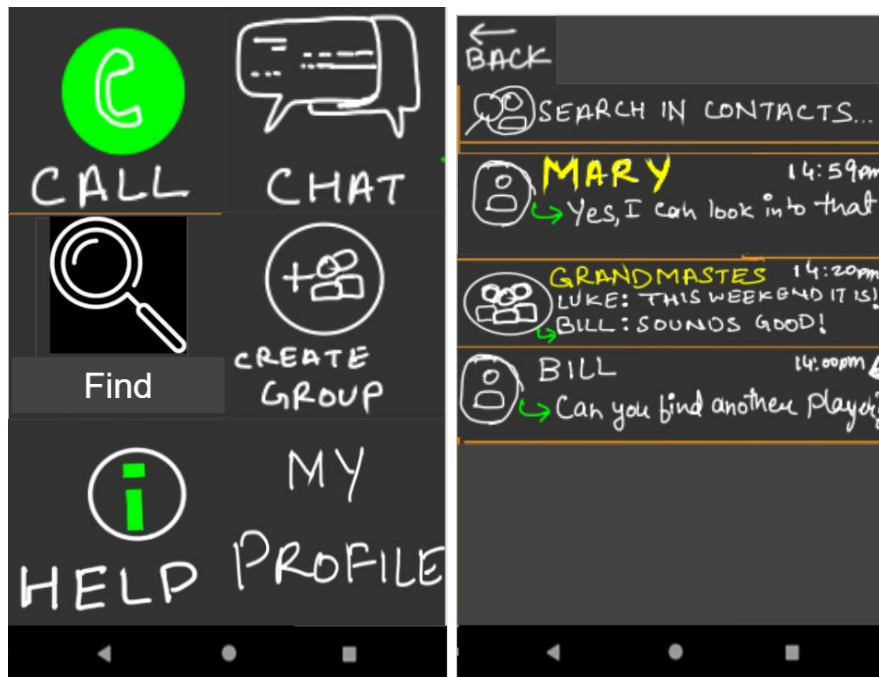
GR3 Prototype:
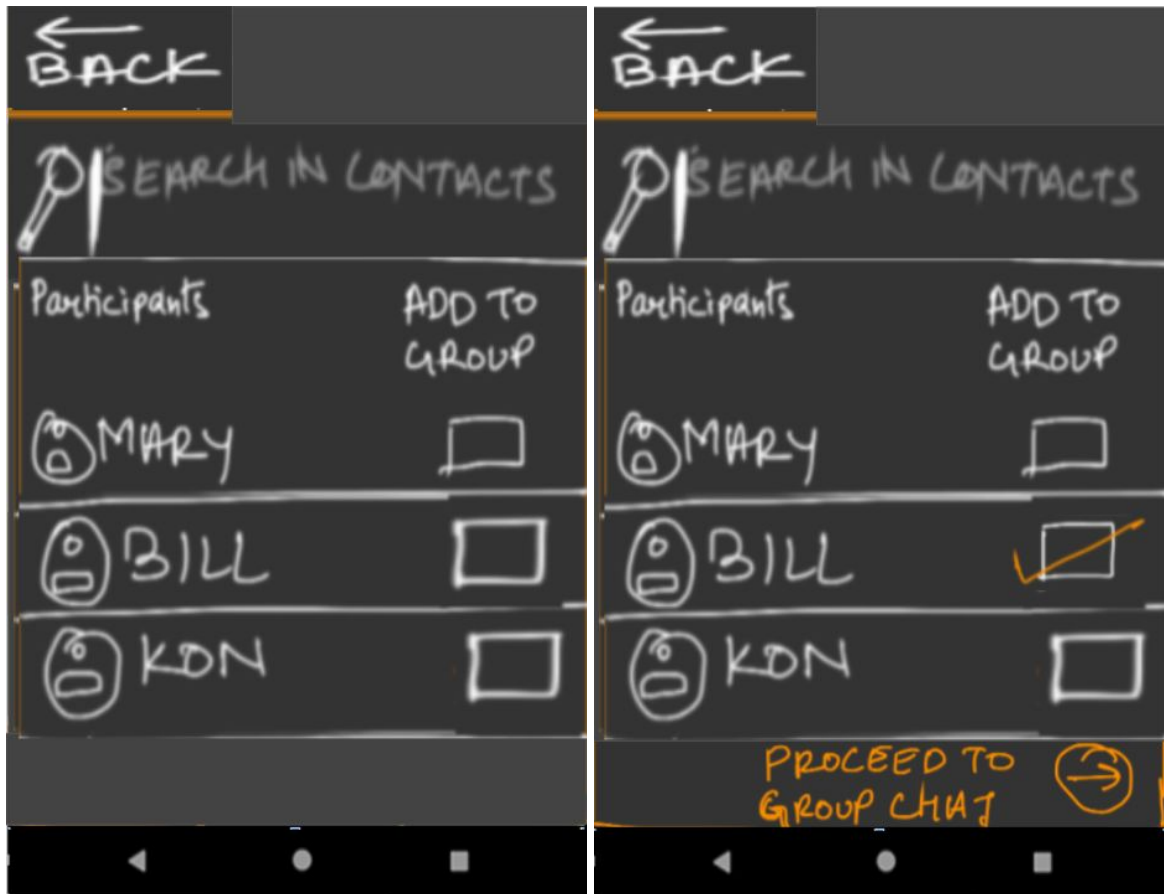
Images of initial Prototype

← BACK | Chess | 🔍

Results:

	Kon	
	#chess #compettitve	ADD

	R to D2	
	#chess #fun	ADD

	Jake	
	#chess #soccer	ADD

	Chess Mates	
	#chess #drinking	ADD

← BACK 🔍 SEARCH IN CONTACTS

GROUP NAME | SIG-CHESS

PRIVATE ☐ ; PUBLIC ☑ ℹ️

Participants | ADD TO GROUP

☺ MARY ☐

☺ BILL ☐

☺ KON ☐

PROCEED TO GROUP CHAT →
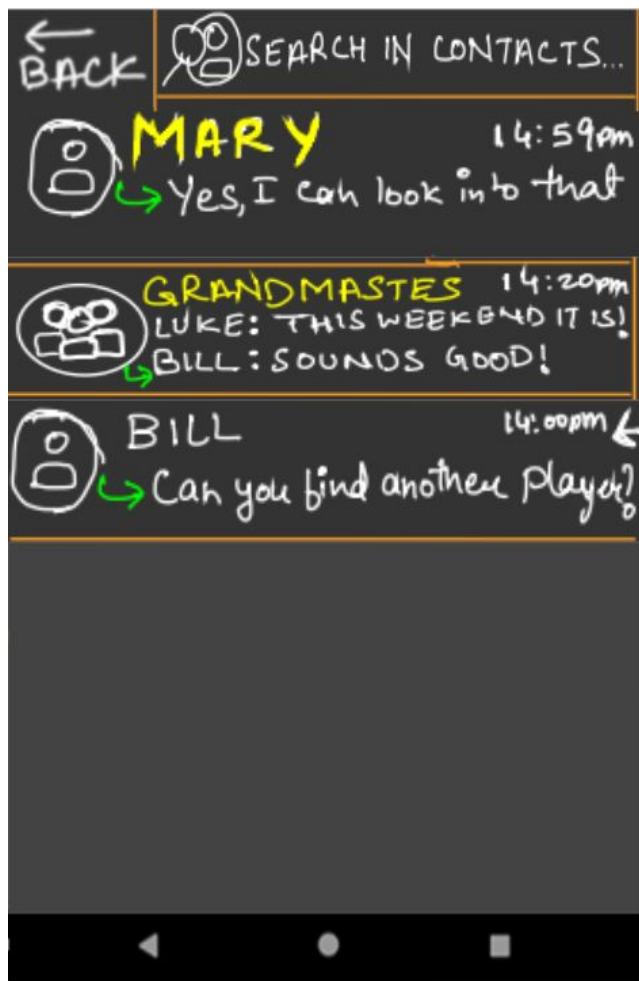
Images of Prototype after the first iteration

Link to Google Slide of Final Prototype: [Prototype](#)

Briefing:

Hi there, we are a student group working on an mobile application for our User Interface Design class. We are here today to understand how people would navigate through our social messaging application and use its group features. This test can take up to 20 mins.

Remember that we are testing the system and not you. So, don't worry about mistakes, that's what we need to see. Keep in mind you are free to stop any time you would like for any reason. You are also allowed to stop any particular task and move back to the home screen in order to attempt the other tasks.

Please feel free to ask any questions regarding the tasks now since there should be minimal guidance from us after you begin the test. This is to better see your process for going through the tasks. We would appreciate it if you can think aloud as in speak what you are thinking while trying to accomplish the task at hand.

Scenario Tasks:

1. Open Bill's chat and send a reply.
2. Discover user Kon who likes chess and add them to the chess group.
3. Create a group. Name it 'SIG-Chess' and make it PUBLIC. Add BILL and KON to the group.

Observations:

1st Iteration: Users A, B, and C

Users A and B were both overwhelmed with the group creation screen. The many buttons caused them to pause to take it all in before continuing with the task. This was a learnability gap that they did not demonstrate in the other tasks. Also, Users B and C both misclicked and added a wrong person to the group. This diminishes the safety of the 'creating a group' task.

Users A and C were also confused with the icons on the main page. Specifically the discover page looked like a key to one of the users so they didn't think about clicking it to add a friend. Instead they tried to find them through the call number, thinking they could add by number. This could be due to using the wrong metaphor in the learnability aspect of usability.

User C brought up a possible usability issue they might have while adding participants to the group. They did not notice the search bar at the top of the screen to do just that. This is a learnability issue because the UI did not successfully communicate that functionality was there.

2nd Iteration: Users D, E, and F

       User D thought that the 'ADD' button next to the user and group in the Find page will add the specific user or group to their contact list automatically. However, what we initially thought was to use the 'Add Contact' button on the top to perform the add task. This leads to a description error that we were not expecting.

       User D also tried to click on the 'add participant' button before she checked any boxes. This will lead to unexpected issues if this is a real application since the behavior is not defined. In this case it is easy for the user to make error in the process of learning

       User E had F were confused with the Private and Public checkboxes during the second task. Especially for novice users, even if there is an exclamation mark user that they can click to find an explanation for the public and private check box, this reduces the learnability by doing it.

       User E went straight to the Chat tab for the second task, because he was thinking he could find user Kon in the Chat tab then create a group somewhere in the dialog tab. User E thought the Find tab feature did the same job as Google search until he clicked it, user E slipped to the Chat tab instead of Find tab.

Prototype iterations:

We went through **3 iterations** of prototyping total and **2 rounds of testing with 3 users each test**.

Outcomes of 1st Round of Testing:
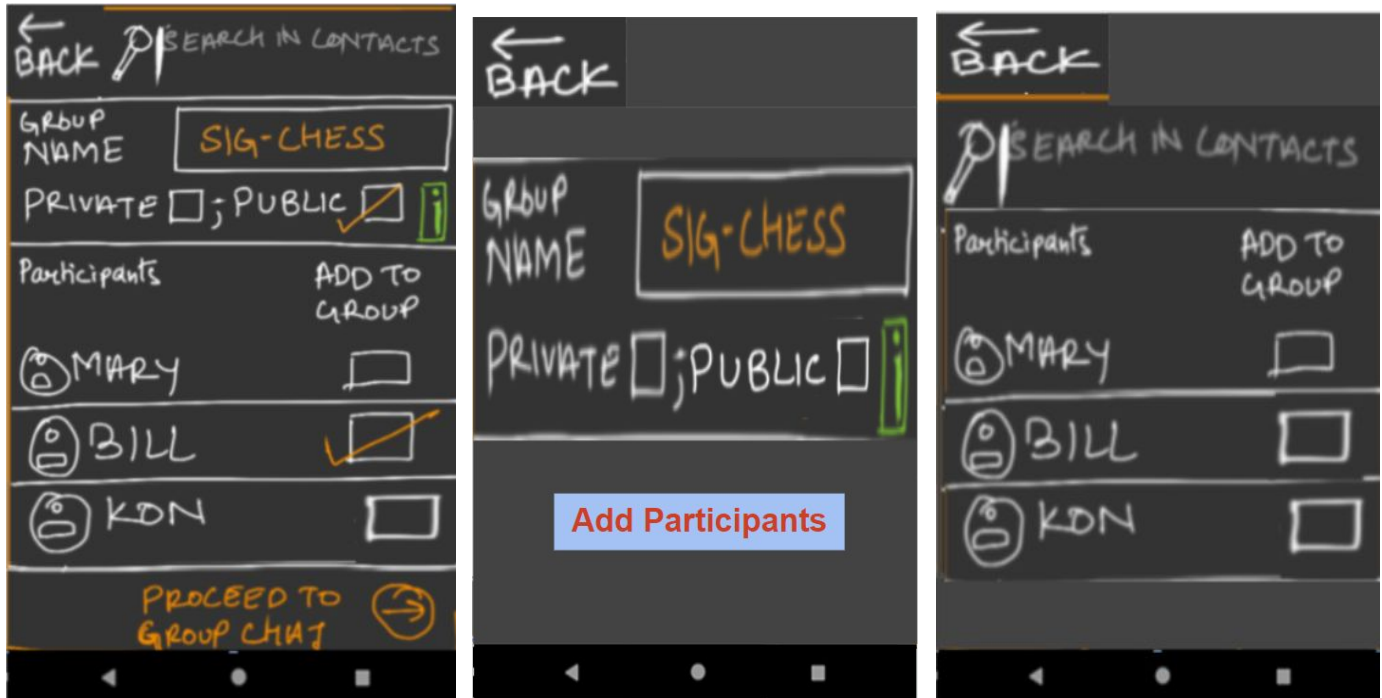
After the first round of testing, we saw that users had trouble with our create group page. There was too much going on once you entered that option so we decided to split the information into multiple pages and let the user fill in the information step by step.


We had difficulties with the magnifying glass metaphor since our sketch was too low fidelity for some users to understand its purpose. We switched to a standard stock image and changed the wording of the button to better fit the analogy of finding a user.

Outcomes of 2nd Round of Testing:

After the second round of testing, we noticed that users are still having difficulty understanding the purpose of Find icon, so we decided to change the caption under the Find icon to 'Find New Friends' to let the user know that this tab is specifically used for finding new contacts.
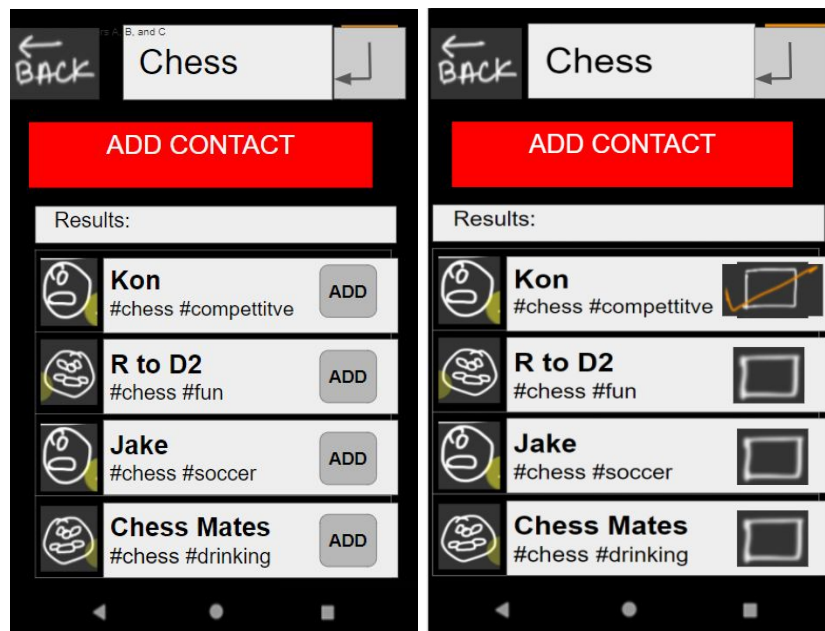
We also noticed that users are easily making description errors on the 'Find' Page between the 'add contact' button and the 'add' button, so we decided to change the 'Add' button to checkbox to avoid confusion. The 'ADD CONTACT' button will only appear after the user checks one of the boxes to avoid undefined behavior.
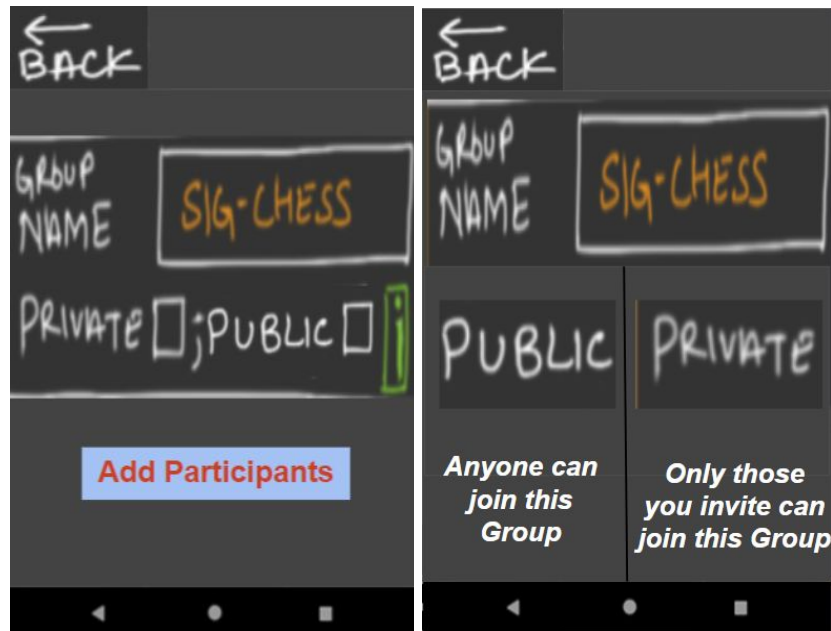
The public and private check boxes also make users confused. So we add short descriptions under each checkbox to help novice users understand the concept of these options and change the checkbox into an actual button.

GR4 Computer Prototyping:

Platform details:

Any browser that can open an Adobe XD prototype. A list can be found here in the 'Supported browsers' section.

Instructions:

Click on the Prototype Link right here to access the webpage of the prototype.

Shallow parts:

The homescreen has some buttons such as Call, Help, and My Profile that are not implemented. The Find page also only has the Chess button available. In the find section and the create group pages we have buttons that should only appear when at least one checkmark is checked. We weren't able to show this behavior in Adobe XD. On the Chat page only Bill's conversation opens up. Users will not be able to type in either the search box or the text box in the chat page due to the limitation of the prototype. We also did not implement the Voice Call, the Voice Note the Video Call functionality and the Talk-To-Type functionality.

Peer Feedback:

1. *"It's not clear where the buttons begin and end. I think it's possible for the user to accidentally press a button that they didn't intend to press. You could possibly add a border around all of the buttons to make this clearer."*

   In the homescreen, we changed the clickable area for every icon from large grid-like squares to smaller circles. This leaves some space between each button to prevent slips.

2. *"When it comes to graphic design, most of your icons in this menu are made up of circles. If you want more contrast, you can remove the circles for "Call" and "Create Group" and leave their respective icons, but for "Help", try replacing the icon with a question mark (?), and you can make the "Find New Friends" icon more descriptive of its function by putting a person under the magnifying glass."*

   For the graphic design, we spend more time to create proper metaphor icons and simplify the feature name to help users understand the feature without language

difficulty. For example, in the 'search for group' page, we added icons for each of the topics in the user's recent searches.

GR5 UI Development:

URL: https://varun221999.github.io/GR5_Final/

Presentation: https://youtu.be/0BsclqaDoac

Contributions:

- Christian Ramirez Gomez
  - Both pages for the Find menu.
- Emiliano Velazquez
  - Group name and privacy screen.
- Varun Subramanian
  - Home Screen.
- Jason Zhang
  - Both Chat pages.
- Hongcheng Wu
  - Proceed to group chat

Incorporated Feedback:

- Multiple Pages
  - A home button was added to the top right of the nav bar to allow easier navigation since we got feedback that sometimes you had to press back many times to undo an action.
- Find Search Page
  - We got mostly positive feedback on the buttons for the recent searches so we decided to keep that the way it was.
- Find Results Page
  - Received feedback to add a confirmation that the requests were being sent since the computer prototype just sent you home. So we added a pop window that tells you that.
  - We also got feedback on the color of the "Add Contacts" button since it wasn't really consistent with the rest of the color scheme and red usually means bad. So the button was changed to a white color.

- - There was feedback about not being able to undo when adding contacts in case you accidentally click the wrong one. However, That was the reason check marks were used. You can undo the check mark before submitting or just go home if you plan on not adding anyone anymore.
- Group Creation Page
  - Disabled and greyed-out privacy options until group name input is given
  - Group name is displayed to the user after valid input
  - Public/Private button design now consistent with other buttons of this application like the recent search categories
- Evaluations Docs:
  - The aforementioned points are just based on the 3 evaluations we received from group 6.
  - The 4th evaluation came in on saturday, as it was too late we were not able to address some of the points mentioned in it.
    - Some of the feedback from the 4th evaluator was redundant, and the ratings did not justify it but given the similar issues being brought up by other evaluators, we addressed that to the best of our abilities.
  - We never received feedback from the 5th member of group 16.

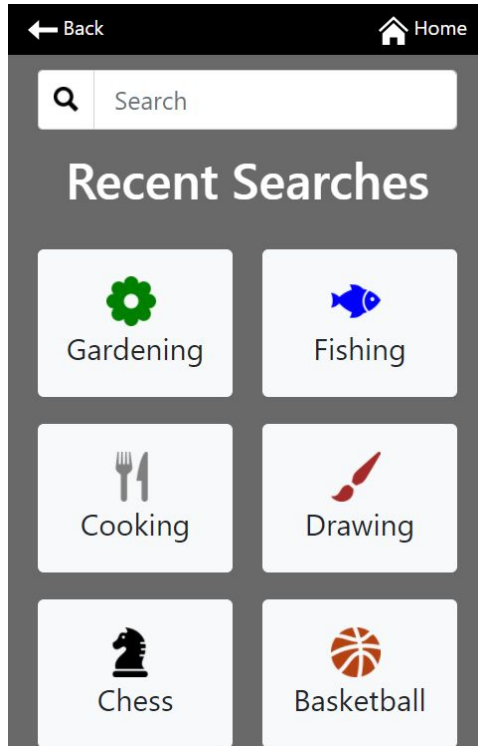# GR6 User Testing:

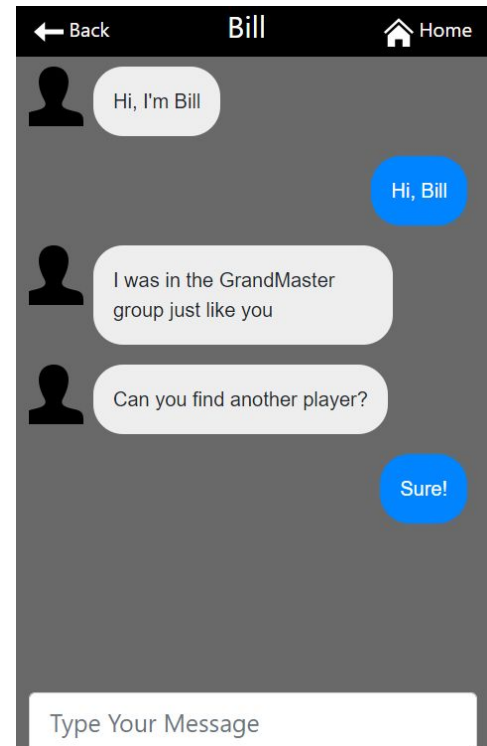## Design and Implementations

Figure 1

Figure 2

In the paper prototype, we found the 'Find' page (Fig. 1) had recent search buttons as text-only clickables. In the heuristic evaluations, we learned they needed a similar design to the other buttons of the app to improve consistency within this system.

In the paper prototype, we found the 'Chat' pages (Fig. 2) were overly complicated with what we thought would be useful features like text-to-speech. In the heuristic evaluation, we learned another feature to video call was similarly making the design too complex. So, we decided to eliminate all of these unnecessary features to improve simplicity by reduction.
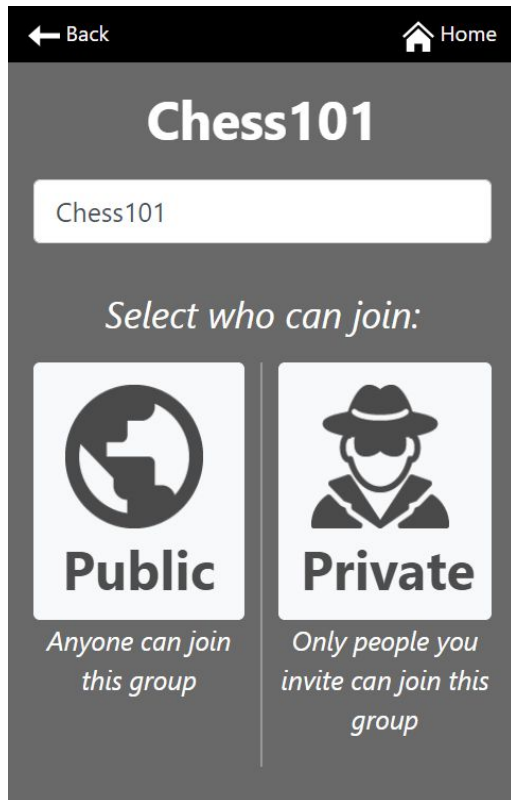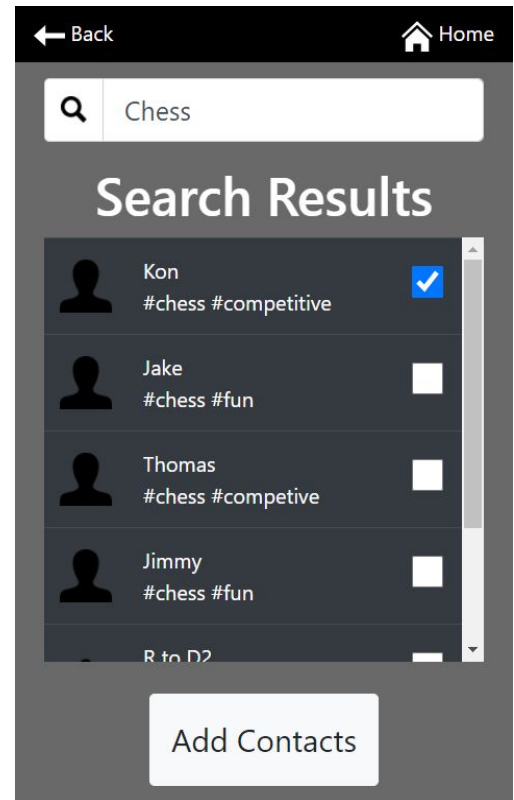
Figure 3

Figure 4

The 'Create Group' page (Fig. 3 & 4) went through several iterations in this group project. During the paper prototype, they were combined into a complex single page that we found needed a simplicity overhaul, so we split it into two pages. In the paper prototype, we found the initial creation page's (Fig. 3) Public/Private buttons were prone to description slip because of their similar design. In the heuristic evaluations, we found they did not give enough visual feedback about the order of creating a group. So, in our final design, we gave them appropriate descriptions and greyed them out when not-in-use to help improve safety and learnability.

During the paper prototype, we found the initial 'Add To Group' page's (Fig. 4) buttons to 'Add' a new member were prone to description errors. So, we switched to a checkbox method to improve safety. In the heuristic evaluation, similarly to the 'Find' page (Fig. 1), we found there wasn't enough feedback to the user about whether a new member had been added. So, we added a confirmation dialogue to improve the learnability.

We also addressed some issues found in the heuristic evaluation. Firstly we changed the color of the 'Add Contacts' button (Fig 4.) to align with the real world usage.

Secondly on every page after the home page there was not a shortcut to directly go back to home page, which decreased efficiency, as a user would have to click the back button multiple times to navigate back. So to address this issue, in the top nav bar along with the back button, we added a home icon with text 'Home' (Fig 1, Fig 3 & Fig 4.) This also addresses the issue of User control and freedom along with Flexibility and efficiency of users from Nielsen's 10 heuristic principles.

Limitations:

A limitation of our final design is that the Public/Private buttons (Fig. 3) are inconsistent in graphical design to the other buttons of the application. They have different length, size, and also include their own description. This decreases the consistency within this system which decreases learnability.

Second limitation of our final design is the inconsistency of confirmation dialogs. In 'Find' page, after finding and adding a person one gets a dialogue confirmation stating they have sent the request to the person to be added in the contact, where as in 'Create group' once the people have been selected to be added into the group, there is no dialog that conveys to the user about invites being sent since we directly route them to the group chat encouraging them to drop a first message as the admin/creator of the group chat. This can be considered under the visibility of system status.

Alternatives:

We considered a few different designs for the home screen icon for the 'Find' page (Fig. 1). Initially, we had learnability issues with the magnifying glass metaphor and the 'Discover' wording. We considered a 'Find New Friends' alternative title for the page but found that wording too complex. Also, apart from finding friends, one could use the 'Find' option to find other groups and send a request to join them which did not go well with the 'Find New Friends' alternative.

Another different design we considered was a table-style list for the recent searches (Fig. 1). This was a heuristic suggestion that we ultimately did not implement because of the decrease in efficiency through smaller clickables and safety because of the increased chance of slips.

Another alternative design we made was after adding contacts when the user created a group, instead of displaying the group setting page the application displayed a pop up window, because the pop up window increases the user efficiency since it gives clear feedback and the user could continue back to the chat page or using other features.

Evaluation

The users were greeted and briefed with the same briefing (provided below) we used for the paper prototyping testing rounds and the tasks were the same as the ones used in GR 3, as they are the ones that we intended to solve through this project. The users who participated for this round of testing were people we knew. They fall into the target audience of our application since they are a mix of older people and some novice users of technology hence were the perfect fit to observe while navigate through the application completing tasks.

Briefing:

Hi there, we are a student group working on an mobile application for our User Interface Design class. We are here today to understand how people would navigate through our social messaging application and use its group features. This test can take up to 20 mins.

Remember that we are testing the system and not you. So, don't worry about mistakes, that's what we need to see. Keep in mind you are free to stop any time you would like for any reason. You are also allowed to stop any particular task and move back to the home screen in order to attempt the other tasks.

Please feel free to ask any questions regarding the tasks now since there should be minimal guidance from us after you begin the test. This is to better see your process for going through the tasks. We would appreciate it if you can think aloud as in speak what you are thinking while trying to accomplish the task at hand.

Scenario Tasks:

1. Open Bill's chat and send a reply.
2. Discover user Kon who likes chess and add them to the chess group.
3. Create a group. Name it 'SIG-Chess' and make it PUBLIC. Add BILL and KON to the group. Send a welcome message to the group.

Common Usability Problems Observation & Analysis:

- Users had a problem with the "Proceed to Group Chat" button. The clickable area isn't as large as expected. Only the text part was clickable while users frequently tried to click the icon. This issue would have a minor severity. This small area reduces efficiency since you have to carefully click the correct spot. The problem could be solved by making the whole button clickable. This would make the app be more efficient for the user when they have to create a group.
- Users reflected they could not find the settings where they set the theme, time display(military time or 12-hour format), and font size. This is a learnability problem because we did not incorporate this setting and the user had to adapt to our time and font convention. A time display and font size setting would increase external consistency because they would correspond to the user's language. This would increase the accuracy and ability of the user identifying the message time and improve learnability.
- Multiple users also fell into an issue when they went to send a message. After they typed out a message they weren't sure how to send it at first. The severity rating on this issue would be minor. Since there's only one way to send the message, users need to recall that the enter key can be used for this purpose. An alternative is to allow the enter key but to also add a button that can be clicked. By adding the button learnability is improved since users can quickly recognize how to send the message. Overall this solution also improves efficiency since users have the freedom of completing the action in multiple ways.
- Some users did not realize the home button shortcut would lead them back to the home screen faster than pressing the back button several times. This is a learnability and graphic design issue because the button's functionality was not immediately obvious to the user. A different button hue, size, or position would make it stand out more, improving learnability but also efficiency because of its functionality.

Reflection

During the design process we learned how important it is to make prototypes with low fidelity at the start. This helps you get many ideas at once while not taking as much time or resources to build. It's especially helpful in large groups since you can get multiple ideas at once and choose what features you like from each one. During this period we also learned how user testing is a very important aspect of the whole design process. By having multiple rounds of testing we can see what went wrong and try to fix it by taking into account the observations we made. This lets us see problems in the UI that weren't as obvious to us since we're the developers and not the user group.

Something we would do differently is make the app mobile friendly when laying out the screen. We weren't able to figure out how to view our webapp on our phone until closer to the due date. So instead the app was built while using a computer screen to see the layout. We would also like to add some kind of notification system to the app. Currently, the app doesn't show any requests they receive from other users or whether the contacts they added already accepted their requests.

We chose the features to implement in our app based on the user task we had already created. The only parts of the app's main screen that can be explored are the ones that the users we tested had to access. The first prototype was made on google slides. We even had link-able buttons to go to the right slide when users clicked things. We had 3 iterations of this design between 2 rounds of user testing. After this we used Adobe XD to build a UI design together. We split the screens amongst ourselves and built each page in that app. The final iteration was built using HTML and Javascript. It was built as a webapp that was sized as a mobile device. This was, of course, the most functional but least feature-rich iteration because we focused on implementing features based on the user tasks which didn't leave much time for extras.

The evaluation process of the project taught us how to look at other UI and be able to tell what's a good feature and what's a bad feature. Using the 10 heuristic evaluations helped us understand examples of each usability component and how they should be used in a UI. We also learned the importance of doing these heuristic evaluations. They get you feedback from other people who are specifically looking for problems. This is helpful in finding issues that could come up for some users that didn't show up in user testing or are not obvious to us as designers.