

FALL 2020 INTERACTION DESIGN PROJECT

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Website: <https://gatherweb.vercel.app/>

Access Code: <https://github.com/meganmrichardson/CMSI-370-Application>

MILESTONE 4 - EVALUATION

PROJECT DESCRIPTION

gather is a social media platform that promotes inclusivity, specifically for underrepresented communities. We want to create a safe space for these groups to openly communicate and share advice with each other.

For this milestone, we are evaluating our detailed prototype of the interface. In this writeup, we describe the protocol and results of our heuristic evaluation, cognitive walkthrough, predictive evaluation, retrospective testing interview, think-aloud evaluation, and questionnaire.

HEURISTIC EVALUATION

For the heuristic evaluation of gather, we had 2 experts go through the “checklist” of criteria below to find flaws that we possibly overlooked during the design process. These experts are from another group in this Interaction Design course (DJAW). This evaluation determines the usability of our web application. The criteria below are from Nielsen’s web page (<https://www.nngroup.com/articles/ten-usability-heuristics/>). For each usability principle, we asked the expert a question to clarify the heuristic.

After briefing the experts, we ask them to take two passes evaluating our system: the first to get a feel for it and the second to focus on specific features. After these run-throughs, the expert is then asked to assign a severity rating to each heuristic and its corresponding issue(s). The scale is 0-4, where 0 means there is not a problem, and 4 means there is a major issue.

1. **Visibility of system status** - *Does the application keep users informed about what is going on?*
2. **Match between system and the real world** - *Is the terminology in the user's language and not computer terminology?*
3. **User control and freedom** - *Is it easy to abort and undo if an error is made?*
4. **Consistency and standards** - *Is there consistency in terms of both design and commands?*
5. **Error prevention** - *Does the application have features that prevent possible errors?*
6. **Recognition rather than recall** - *Did you struggle to remember something in the application that led to confusion at a later point?*
7. **Flexibility and efficiency of use** - *Does the website provide shortcuts for experienced users?*
8. **Aesthetic and minimalist design** - *What would you rate the graphic design and color choices?*
9. **Help users recognize, diagnose, and recover from errors** - *Does the application help users when they are in trouble?*
10. **Provide suitable help and documentation** - *Does the site offer help or documentation to guide the users?*

We recorded the information by giving the expert a google doc with a table to fill out with severity ratings and any notes they have for each heuristic.

The results are summarized in the table below:

Heuristic	Average Severity Rating	Notes
Visibility of system status	0	Awesome interface helps users know what page they are currently on and system status.
Match between system and the real world	0	Terminology is on point for users who are not computer science people.
User control and freedom	1	<p>The arrow to go back felt far away from the rest of the page. Maybe bring the arrow to be aligned with the content of the page so that it doesn't feel like a trek to reach it</p> <p>For the most part, undo is easy except for when the</p>

		users are making an account, there is no way to confirm passwords or rename usernames
Consistency and standards	0	Across the board, the design, terms are all consistent.
Error prevention	2	<p>Didn't find any error prevention, but without a backend, I don't think this is a big issue. Just keep this in mind if you were to move forward.</p> <p>When making a new account, there is no way to change usernames or passwords.</p>
Recognition rather than recall	0	Everything was on the page which was helpful.
Flexibility and efficiency of use	2	<p>No shortcuts, but there isn't really much to shortcut to, so not a big issue</p> <p>There are no shortcuts since there is only one way to do things</p>
Aesthetics and minimalist design	0	<p>I like the shade of green. Very soothing and relaxing</p> <p>Awesome designs</p>
Helps users recognize, diagnose, and recover from errors	1	<p>Not much you can do about this, just something to keep in mind for later</p> <p>I don't think there are any backends that are visible from the client, so there are no errors.</p>
Provide suitable help and documentation	1	<p>No documentation, but I don't think this is a big issue</p> <p>No external documentation, but overall the system is easy to use.</p>

Summarized Results:

The average severity ratings tell us what aspects of our website need the most work. Both Error Prevention and Flexibility and Efficiency of Use received an average severity score of 2, indicating moderate-to-high importance of fixing the related issues. One of our experts noted that they did not notice error prevention in our site and to keep this

in mind as we add a backend. Another note we received was to implement a way for users to change their username and password when they make an account. To improve flexibility and efficiency of use, our experts suggested adding shortcuts for more technologically savvy users.

Other less pressing issues (with an average severity score of 1) include:

- Using the back arrow in the browser to help navigate.
- Changing the location of our back arrow to be aligned with the content of the page.
- Remembering to help users diagnose and recover from errors once we implement a backend.
- Adding documentation, especially when the site gets more complex than its current state.

On the other hand, parts of the application that our testers enjoyed include:

- The visual design (specifically our color choices)
- That it is clear where you are in the interface.
- The consistency of design and terms.

COGNITIVE WALKTHROUGH

For the cognitive walkthrough of our application, we had 2 experts complete a specific task to inspect if there are any issues. These experts are from another group in this Interaction Design course (DJAW). This walkthrough helps us identify more specific problems with that task than our heuristic evaluation does.

Once the expert has conducted the walkthrough, we ask them to fill out a short written report identifying any issues they discovered. We help guide them through this process by briefing them with a short script and providing them with a google doc for their report. The google doc also includes:

- The link for the website
- The short script to remind the expert of the task
- A few guiding questions to help the expert write the report

Task: Creating a post

Script: "Thank you for participating in the cognitive walkthrough of our application, gather. We ask for you to complete the task of creating a post a few times to identify any problems, small or large. Once you have finished this walkthrough, we ask that you

write a small report below to tell us about any issues you noticed. Click the link below to access our application."

Summarized Results:

Some of the key comments about design flaws that our experts made in their written reports include:

"...having the create post button at the top seems a bit unintuitive to me because, on most other apps, the post button is on the bottom of the screen."

We originally made the design decision to place the create post button at the top for consistency with the other buttons (i.e. Profile Discover). This is a great suggestion, we think the best solution would be to keep the create post button, but add another "+" button at the bottom of the page for creating a new post.

"I like the ability to add photos and I am curious as to what that would look like when scrolling through posts."

Our current interface does not have a backend to support the creation of new posts, so we have not yet implemented the design of a post with a photo. Our plan is to include the photo as part of the text body, under the text (if the post includes text). Thus, the look of scrolling through posts would be similar to how it appears at the moment.

"...you can't use the normal back/forward browser buttons. This isn't a big deal to the visual site design but I can imagine it can present some problems."

We designed the application similar to mobile apps, which typically include the back button in their design. Since we have deployed as a web application, we want to remove this feature and use the typical browser back/forward buttons instead. This will be more familiar to the user and ensure that our design is scalable.

"...it might be nice to be able to navigate to any of the 'Profile'/'Create Post'/'Discover' from any place in the app..."

This is a great suggestion as it makes the site more easily navigable, shortening the amount of time it takes to get from one page to another. This is an easy

change to make as we can add the navigation bar from the home page to all of the other pages.

A few of the positive comments the evaluators made include that they like our visual design and aesthetics and that, for the most part, our interface is clean and straightforward. Our main takeaways from the cognitive walkthrough are that we must:

- Add a create post button at the bottom of the feed page
- Make a few minor design changes (including spacing and font)
- Create a backend so that we have a fully developed create post feature
- Use the normal back/forward buttons in the browser (instead of the back arrows in our current design)
- Add a navigation bar at the top of every page

PREDICTIVE EVALUATION

The predictive evaluation provides a way of evaluating our product without directly involving users since we, the designers, are testing it ourselves. We are using the KSLM (KeyStroke Level Model) to assess one of the core tasks in our application: searching.

We are asking the question: *How long does it take to search for the "LGBTQ+" community page?*

Steps:

** We are assuming that the users are starting at the home/feed page.*

1. Go to the Discover page
 - a. H (home on mouse)
 - b. P (find the "Discover" button)
 - c. P₁ (click on mouse button)
2. Click on search bar
 - a. P (find the search bar)
 - b. P₁ (click on mouse button)
3. Type "LGBTQ+" in the search bar
 - a. H (home on keyboard)
 - b. K K K K K K (hitting the keys for L, G, B, T, Q, +)
4. Press the search button
 - a. H (home on mouse)
 - b. P (find the "Search" button)
 - c. P₁ (click on mouse button)

$$\begin{aligned}
 \text{Total} &= 3H + 3P + 3P_1 + 6K \\
 &= 3(0.40) + 3(1.10) + 3(0.20) + 6(0.28) \\
 &= 6.78
 \end{aligned}$$

Predictive Time = 6.78 seconds

Takeaways:

The KSLM method reveals ways that we can shorten the time to search for something (i.e. a community or user). One advantage of KSLM is that different designs can be quickly and easily compared against one another. Once we implement changes, we can do another KSLM test to compare the predicted times and analyze the improvements. A few of the alteration suggestions include:

For step 4 (pressing the search button), we can add a feature that once the user has input their search terms, they can merely hit the key enter to search. This replaces the time of 1.70 seconds ($H + P + P_1$) with 0.28 seconds (K), thus giving us a time improvement of 1.42 seconds.

Implement a feature where the tab key moves the user to different buttons and pressing enter “clicks” on the button. By making our site completely navigable by the keyboard, we limit each individual step to a predicted time of 0.28 seconds, even if there may be more steps in total. This prevents the user from being forced to switch between the mouse and keyboard to complete a task, thus removing the H variable.

In summary, the predicted time of searching for the LGBTQ+ community is a reasonable time for the task, but we can improve this time by implementing changes that allow the user to take faster routes to complete their task at hand.

RETROSPECTIVE TESTING INTERVIEW

We asked 3 users to complete this Retrospective Testing Interview. For this evaluation, we asked the users to complete the following high-level tasks by themselves. We chose to watch the session live instead of recording it. After they finished the specified tasks we asked them about certain actions they took and their decision-making process. The tasks include:

1. "Manage your profile settings"
2. "Make a post to the community titled ¡Comunidad!"
3. "Learn more information about the Native American Community"
4. "Identify what date your oldest post was posted on"

User 1

1. "Manage your profile settings"
 - a. Q. Was it easy to locate your profile page?
 - i. A. Yes
 - b. Q. Do you like the location of the manage settings button? Is it convenient? Are there other locations that might be more convenient?
 - i. A. Yes, it's clear. I tend to gravitate towards the upper right-hand corner for settings, however.
2. "Make a post to the community titled ¡Comunidad!"
 - a. Q. Did you have any trouble doing this task?
 - i. A. Nope, I figured it out
 - b. Q. Do you like the drop-down menu for selecting a community? Would you prefer another way of choosing a community?
 - i. A. No, I like the drop-down. It would be nice if the communities were alphabetized.
3. "Learn more information about the Native American Community"
 - a. Q. Why did you try to click the picture?
 - i. A. Initially I tried to click the picture because that what my eye was drawn to so it took a second for me to read the "apply and more info buttons"
 - b. Q. Do you think there is a better layout for achieving this task?
 - i. A. If you were to only have the pictures and titles then you can click on the pictures which bring you to a page where you can either apply or click more info
4. "Identify what date your oldest post was posted on"
 - a. Q. How easy was it to complete this task? Did anything confuse you?
 - i. A. Nope it was easy. I looked right at the date.
 - b. Q. Any final thoughts on this task or the application as a whole?
 - i. A. This task was easy but the homepage is a little confusing because I'm not sure when I'm at the top or not and I keep scrolling up

User 2

1. "Manage your profile settings"

- a. Q. Was it easy to locate your profile page?
 - i. A. Yes
 - b. Q. Do you think we should change the location of any buttons?
 - i. A. The manage settings button placement seems odd. Maybe if there was a bigger delineation between the different things on the page. The location should change too.
- 2. "Make a post to the community titled ¡Comunidad!"
 - a. Q. Were you confused at any point?
 - i. A. No
 - b. Q. What can be improved about that feature?
 - i. A. Implement the typical browser's back button. I logically chose the community first, so I would put that at the top.
- 3. "Learn more information about the Native American Community"
 - a. Q. What can be improved about this feature?
 - i. A. Allow users to press the icon.
 - b. Q. Do you like the design of the page?
 - i. A. Yes, I think it is really straightforward and I like that you use universal symbols.
 - c. Q. As a Native American, do you think that the symbol is offensive?
 - i. A. Not at all
- 4. "Identify what date your oldest post was posted on"
 - a. Q. Is anything confusing about this task?
 - i. A. Yes, because I thought I thought the posts on the home page were mine.
 - b. Q. When was the oldest post?
 - i. A. September 2nd

User 3

- 1. "Manage your profile settings"
 - a. Q. Was it easy to locate your profile page?
 - i. A. No. The color of green was too light and didn't stand out
 - b. Q. Do you like the location of the manage settings button? Is it convenient? Are there other locations that might be more convenient?
 - i. A. I thought it was convenient. I'm used to looking right but the profile was on the left. I like how the manage settings button was in the middle though
- 2. "Make a post to the community titled ¡Comunidad!"
 - a. Q. Were you confused at any point?
 - i. A. No

- b. Q. Do you like the drop-down menu for selecting a community? Would you prefer another way of choosing a community?
 - i. A. Yes I love drop-downs. I use a lot of drop-downs
 - 3. "Learn more information about the Native American Community"
 - a. Q. What can be improved about this feature?
 - i. A. Click directly on the icon and change the green
 - b. Q. Do you think there is a better layout for achieving this task?
 - i. A. Yes it was fine, but everything didn't fit on the screen, I had to scroll down. I want to do less work
 - 4. "Identify what date your oldest post was posted on"
 - a. Q. How easy was it to complete this task? Did anything confuse you?
 - i. A. At first, I was looking for a history tab but I found it under my profile through the process of elimination
 - b. Q. Any final thoughts on this task or the application as a whole?
 - i. A. Fairly user friendly, but I hate the green, difficult to see

Summarized Results:

The results of this Retrospective Testing Interview show that our application is fairly simple resulting in it being user-friendly, however has a few weak spots that can easily be improved.

All three users had an issue with the location of the manage setting button. Customization and security are both super important factors to this app that would be housed under that category so we want to ensure that users can locate this easily. Two users explained that they automatically look towards the right side of the screen for settings as that's how many other applications house their setting button. Perhaps adding a hamburger menu in the top right corner that could house settings and any other important links would be beneficial in helping users quickly access the settings.

Another issue that users brought to our attention was that in the discover tab, users should be able to click the actual picture of the community to access its page. All three users clicked the picture before realizing they needed to click this text which adds to our overall predictive walkthroughs.

Besides those issues, we received positive feedback on many elements of the applications. Users liked the drop-down menu to choose a community in the create post page. The timeline feature also received praise as users were able to very quickly identify the oldest post on my profile page.

THINK-ALOUD EVALUATION

For the Think-Aloud Evaluation we asked 3 users to perform a set of high-level tasks:

1. "Manage your profile settings"
2. "Make a post to the community titled ¡Comunidad!"
3. "Learn more information about the Native American Community"
4. "Identify what date your oldest post was posted on"

As the users tried to complete the tasks above we took notes on what they were thinking-aloud at each stage of the task. The recorded results can be seen below, where the notes under each task are comments from the user.

User 1

1. "Manage your profile settings"
 - a. I'm typing in my typical username and password
 - b. I'm logged in and clicking my profile
 - c. Manage settings
2. "Make a post to the community titled ¡Comunidad!"
 - a. Okay, create a post
 - b. The title is "this website..."
 - c. Post body is "this website..."
 - d. And I can attach a photo with it
 - e. And choose community, so these are like my groups
 - f. So I'm am going to select LGBTQ+
 - g. (We instructed the user to select Comunidad)
 - h. Selects post
3. "Learn more information about the Native American Community"
 - a. I'm going to go to the discover tab
 - b. And then scroll and then select the Native American and hit the more info button
 - c. I would like to be able to click on the picture instead
4. "Identify what date your oldest post was posted on"
 - a. I would probably go to my profile for that
 - b. I see my post 1 was created 3 days ago
 - c. I see that post 2 was created on September 2
 - d. It's weird that the post 1 and post 2 orders are mixed up

User 2

5. "Manage your profile settings"
 - a. I put in a username and no password
 - b. I logged in
 - c. I'm on the main page with three menu items
 - d. You should reverse the menu items
 - e. It's unclear what page you are currently on
 - f. I would go to my profile
 - g. Now I am at my username's profile
 - h. It shows posts even though I haven't created a post
 - i. I hit the manage settings button
 - j. That was pretty clear and page time was pretty quick
6. "Make a post to the community titled ¡Comunidad!"
 - a. There's no menu to go back to the home page
 - b. I click on create a post
 - c. I see that I can enter a title and a post body
 - d. I can choose a community to post to
 - e. It would be clear to me if the community was the first thing you would select before writing the post
 - f. I selected Comunidad
 - g. Going back up to type post
 - h. I'm typing (describes what he is typing)
 - i. What's Comunidad?
 - j. I'm selecting a photo
 - k. I did a title, subject, and I selected a picture and now I'm submitting
 - l. It took me to a screen of three posts, but it is not clear to me where I'm at in the app
7. "Learn more information about the Native American Community"
 - a. I am going to discover
 - b. I am going to go to Native American
 - c. Seems obvious
 - d. I can't click on Native Americans, I clicked on more information and then I went back to click on apply
8. "Identify what date your oldest post was posted on"
 - a. I am going to go to my profile
 - b. I guess I am just going to scan
 - c. I see that post number 2 was on September 2nd

User 3

1. "Manage your profile settings"
 - a. So I am typing my name and I wrote in a password
 - b. I am wondering why it doesn't have a create an account button
 - c. I am on the home page
 - d. I looked in the right-hand corner for a profile icon and it took me a second to find my profile
 - e. Then I clicked on manage settings
2. "Make a post to the community titled ¡Comunidad!"
 - a. I go to create a post and then choose Comunidad as my community
 - b. I typed gibberish
 - c. And then I clicked submit
 - d. I don't see my posts
 - e. I don't understand how to tell if this is my home page or not
3. "Learn more information about the Native American Community"
 - a. I am going to discover
 - b. And more info
 - c. I feel like I should be able to click on the icon, that is my first instinct
4. "Identify what date your oldest post was posted on"
 - a. Going to my profile
 - b. It was September 2nd

Summarized Results:

Some of the key takeaways from this evaluation are similar to the retrospective testing: users find our application easily navigable however has a few pitfalls which can easily be improved. Luckily, in this evaluation, we are able to see exactly when a user begins to make an error allowing us to better remedy the error before the user runs into it.

Some users had an issue with the layout of the homepage. Similar to the other evaluation, many users gravitate to the right corner to locate items such as profile and settings. As stated above a satisfying remedy to this situation would be to add a hamburger menu in the top left corner and include the settings there as well. This will also allow users who didn't take issue with the layout and went directly to my profile section to stay on the normal path that they chose to take.

An issue that was brought to light through this specific testing is that users don't know what page they are on when they are on the main homepage. This doesn't necessarily harm the user or affect their tasks but it was clear when users 2 and 3 were thinking

aloud that they didn't know what the home page actually was. This is helpful to us because most users would also have that same thought so we would want to fix it. We can add a title to this page which would alleviate one extra thought while users are navigating the application.

QUESTIONNAIRE

We used this questionnaire on the users involved in the Retrospective Testing Interview. The questions and responses are as follows:

Open-ended questions: *What do you think the search feature should be able to search for (i.e. right now we plan on implementing search for only users and communities)?*

1. User 1: I think that you should be able to search on users, communities, and posts (content).
2. User 2: In addition to searching for users and communities, I think you should be able to search for topics, including the title of the post.
3. User 3: I think you should be able to search for certain discussions within a community because there are so many different facets to each community.

What are your favorite and least favorite parts of the application at its current state?

1. User 1: Favorite: I like the visual design of the discover page. Least Favorite: The My Profile page.
2. User 2: Favorite: The icons for the communities. I like how big they are on the discover page. Least Favorite: The accent color.
3. User 3: Favorite: I like the simplicity of the application. Least Favorite: I think the organization is not intuitive, especially the home page and knowing what page you are on.

Closed questions: *Do you think that users should have the freedom to create communities (the alternative is that the application has set communities)? yes/no*

1. User 1: No. I think you should have set communities and that users can create discussions within that community.
2. User 2: No, because I think it will make it too complicated. The current simplicity is appealing. If a community isn't represented they should be able to request that app create a new one.

3. User 3: No, but I think it is important for users to be able to set up conversations within a community because the communities are so general.

*Should the users be able to follow not only community pages but also individual users?
yes/no*

1. User 1: No.
2. User 2: Yes, I don't see why not.
3. User 3: Yes.

Scalar question(s): *On a scale of 1-10 rate the aesthetics of the interface where 1 is the worst and 10 is the best.*

1. User 1: 7
2. User 2: 8
3. User 3: 8

Multiple-choice question: *Which additional feature do you think will add the most to the application in the future: (a) friending users, (b) event planning, (c) allow users to create communities, or (d) other?*

1. User 1: (d) The ability to create discussions within the community
2. User 2: (b) But add the event into a community calendar.
3. User 3: (b)

Ranked question: *Rank the pages of our applications in the order in which they need the most to least changes/work: (a) login, (b) home, (c) profile, (d) create post, or (e) discover?*

1. User 1: home, profile, discover, create post, login
2. User 2: profile, home, login, create post, discover
3. User 3: home, profile, login, create post, discover

Summarized Results:

The results of this questionnaire suggest that we should make the following changes:

1. Increase the scope of what the user can search for. This could include adding the ability to search for posts, topics, or discussions within communities.

2. Make the organizational flow of the application more intuitive. This involves changing the location and order of the menu items as well as making it more clear to the user exactly what page they are currently on.
3. Allow users to create new discussion pages within a community. This opens the possibility of subgroups within the bigger community, making the application feel more comfortable and personal for users.
4. Allow users to request the creation of a new community if there is no current page for their underrepresented group.
5. Add the ability for users to create events on a community page, perhaps in a community calendar.
6. Focus on the home and profile page in terms of design and functionality changes.

The participants given this questionnaire enjoyed the visual design of the discover page, specifically the community icons. One participant noted that they like how we use universal symbols for the icons. Another participant also noted that they like the simplicity of the design. The aesthetics of our application received an average score of $7\frac{2}{3}$, indicating that although users find the design appealing, there is definitely room to improve the visuals.

SUMMARY

The demographics of the participants involved vary for the different evaluations. The experts who completed the heuristic evaluation and cognitive walkthrough all have the same education level. This education level includes their knowledge of product design that classifies them as experts. This knowledge comes from our Interaction Design class thus categorizing them all as current undergraduate students. We completed the predictive evaluation ourselves. Since this test is objective, it is not as important for us to take note of our demographics.

The demographics of the retrospective and think-aloud evaluation were taken before both of the tests. We asked the participant their age, race, and gender. The ages of our participants can be classified into two different groups: young adults and middle-aged.

This data is important as it might reflect the comfortability of our participants with social media applications. There is a relationship between age and familiarity with technology which could have impacted our data. The racial groups that our participants identify with indicate that most participants are not part of an underrepresented racial group in the United States. This does not indicate that they are not a member of another underrepresented group, as only some of our communities are race-based. The genders and races of the participants can influence how likely the participants are to use the application.

The tasks we selected for the evaluation include:

1. "Manage your profile settings"
2. "Make a post to the community titled ¡Comunidad!"
3. "Learn more information about the Native American Community"
4. "Identify what date your oldest post was posted on"

We chose these four tasks because together they take the user to all the main pages so that they use or see all of the site's features. This allowed us to get feedback for all the different pages in our application. We made these tasks more specific by having users click on certain buttons, or find a specific community so that we could test how intuitive our site and its buttons are. We chose these tasks over others because they take the user through the entire site and force them to make more specific choices.

The overall results of the evaluations we completed suggest that there are many visual and functional changes that would improve our project. Some of the main suggestions that participants proposed include:

1. Adding a backend to hold users, posts, and community data. Once this is implemented, we must work on error prevention, specifically related to the login, and create post features.
2. In terms of navigation: we must change our application so that it uses the browser's back arrow to help the user navigate and add a navigation bar at the top of every page.
3. In addition to using the mouse to navigate, make the web application completely navigable with only the keyboard. This can shorten the time to navigate around the site.

4. We should change the location of certain buttons and possibly the navigation menu. This will make the design more intuitive so that the user is not confused at any point.
5. Give the user the option to search for more than just users and communities. This could include general topics, conversations, or posts.
6. We should allow the users to create discussion pages within communities. This allows more user freedom and the creation of subcommunities.

The limited amount of time that we have per semester made it difficult to implement a large amount of functionality and features. If we were given another semester to implement and improve different features there are many different possible features, but there are some that take priority over others.

The most important feature from a user perspective would be to finish implementing all of the pages. The lack of time made it difficult to fully finish the design and implementation of the community pages which would be a significant aspect of the overall design. With this comes the unfinished implementation of some of the key functionalities of our application. This is in regards to the create post page in which the user can type out their post but when the post is submitted the actual information is not fluidly displayed in the user's feed. At the moment the links for navigating to a community in the discover page as well as managing and customizing a user's profile page currently are unfinished so given more time we would finish the design and implementation of those. Some of the problems with the fluidity of information on our site come from the lack of back-end functionality to store and process information past a single instance.

Given more time in the future, we would also like to implement a fully functional back-end for our application. This would allow the user's account information and data to be saved along with our application historical posts. Having this functionality would help with the overall user feel and experience. Also, with a larger amount of information and data, we would be better able to implement user personalized searches to help users more efficiently find the community or user that they are searching for. With user information saved, we would also be able to implement a friending/connecting system for the user's who wish to follow a specific user's account instead of only being apart of communities. Having the back-end would open up many new possibilities that could improve the user's experience.

The final feature that we would want to implement if given more time would be a new feature that would allow users to create their own communities. When creating their community the user would be able to select whether they wish to make the community available for public or private access, as well as add moderators to help them manage their community. While the number of possible new features that we could brainstorm, design, and implement are pragmatically uncountably infinite, it remains an unfortunate truth that there is a time limit for this semester, however, we hope to continue the development of the site and hopefully, one day help give a safe community for underrepresented communities.