High Fidelity Prototype and Evaluation

FIT3175 Submission 3

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Contents

High fidelity prototype

Implementation process

The implementation process of our high-fidelity prototype was informed by previous submissions, including user feedback, personas, low-fidelity designs, and user storyboards. We then utilized Figma to create an aesthetically pleasing and interactive high-fidelity prototype.

We have chosen the following requirements to implement this prototype on Figma:

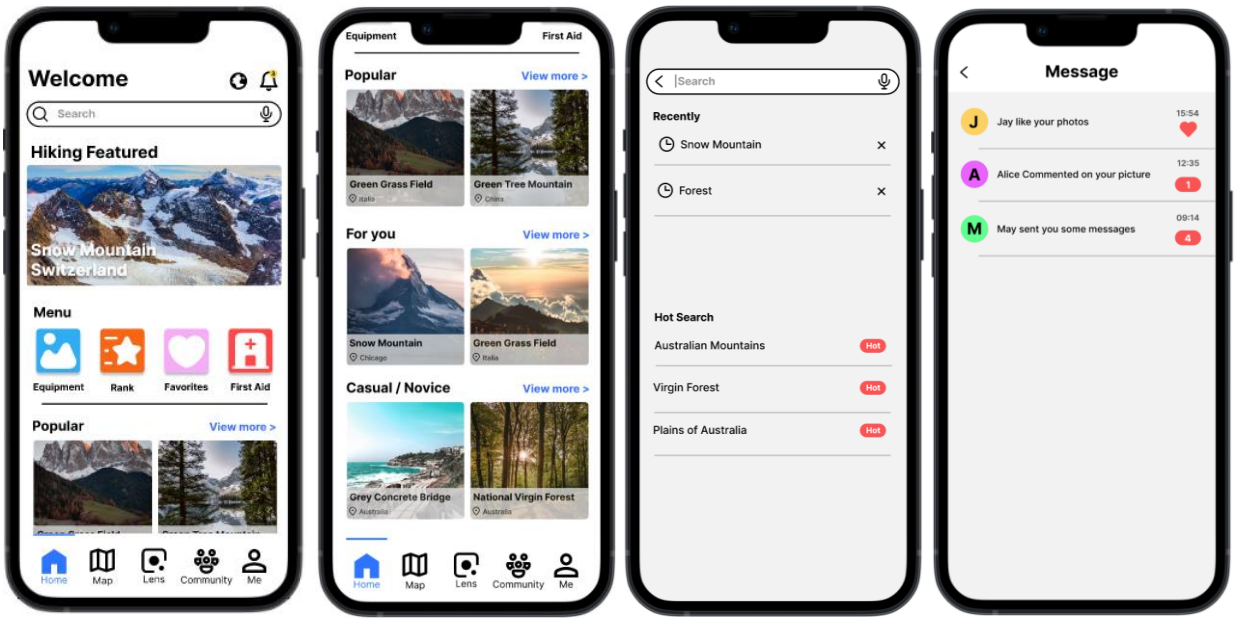
1. Allow users to find hiking trails based on their needs and preferences.
2. Allow users to navigate and track through the selected trail.
3. Allow users to create posts in a forum and make hiking friends.
4. Allow users to learn the corresponding first aid treatment in the event of an emergency.
5. Allow users to bookmark some hiking locations or routes for easy viewing at any time
6. Allow users to use voice input function
7. Allows users to identify different animal species and plant species through the camera.
8. Provide a search function with a filter to allow users to list the places they are interested.
9. Provide an "accessible" filter option to show only places that are accessible.

Figma link: https://www.figma.com/file/YjBckBFJpIUzVC2sTE8VGl/Hiking-App-Group-K

Screens

Home Screen (Junhao Zhu)

Screens



Description

The home page is the initial page of the software and a transit point for other pages. The home page contains daily hike selections, a search bar, a menu bar, and bottom navigation

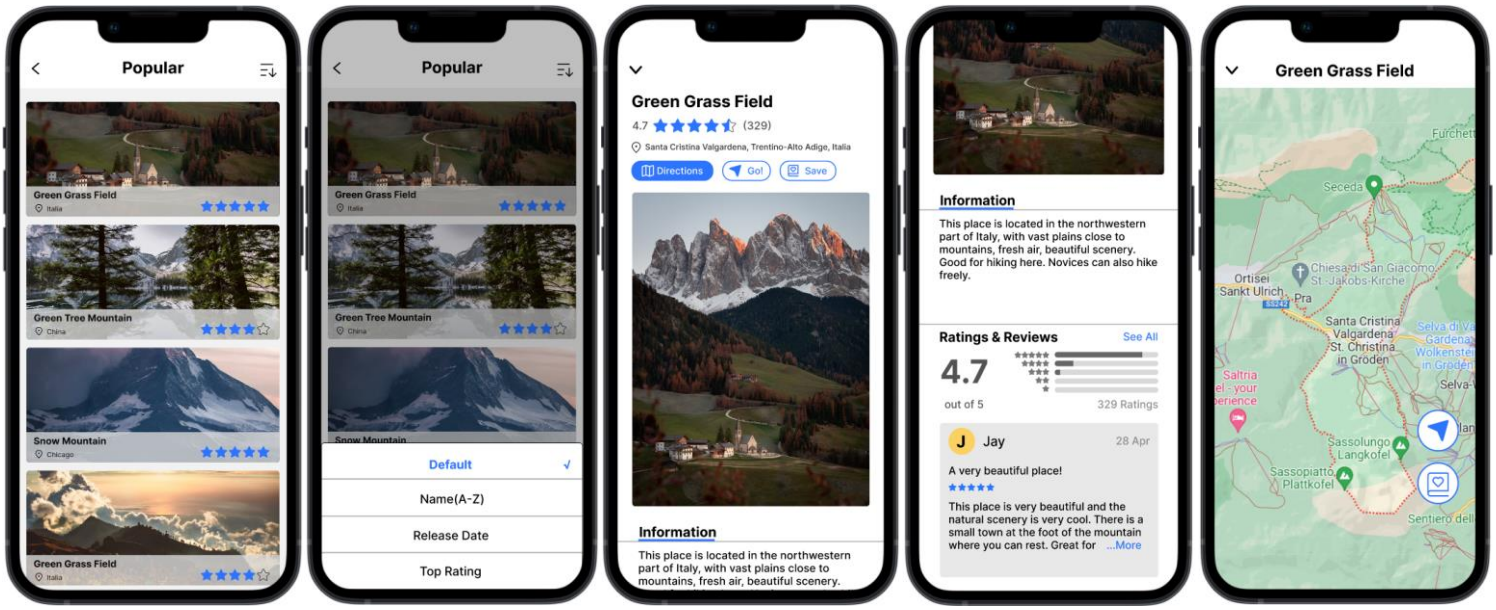
Principle

6 principles of visual design for UX: Scale

The page mainly uses three different sizes, which are graded according to their importance on the main page. The largest is the daily selection at the top of the screen. The second is the recommendation for each category. The third one is the icon for different menus. In these three sizes, users can easily recognize the importance of different content, create a visual hierarchy, and have no cognitive burden.

Popular and Location Detail Screen (Junhao Zhu)

Screens



Description

Popular page is accessible from the main page, it displays popular hiking locations. Contains a sort button for sorting.

Location Detail page include: Detailed address, scenic images, descriptions, user comments, Bookmark button.

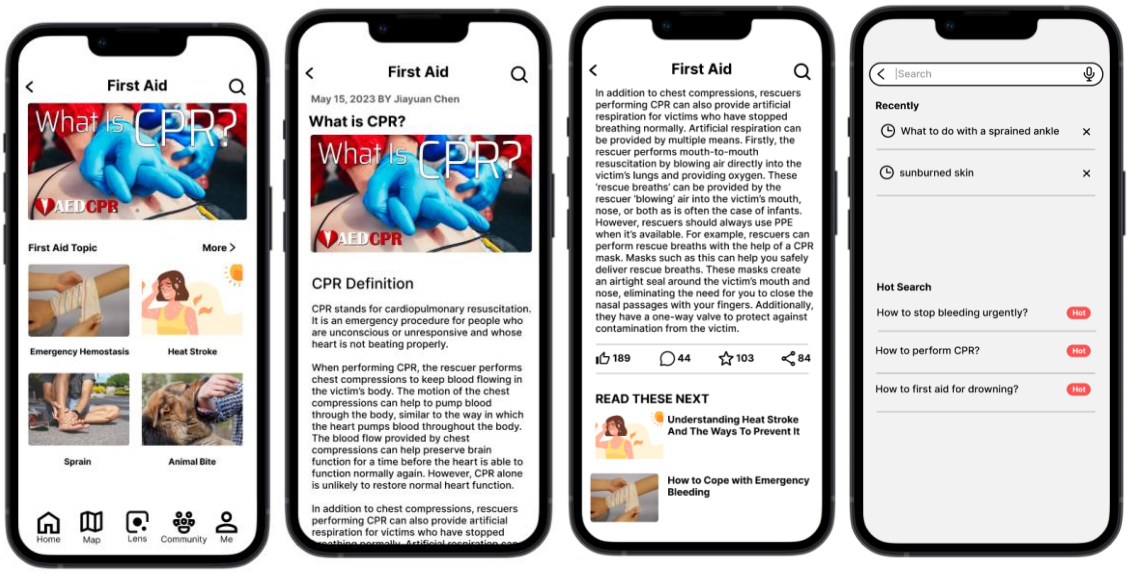
Principle

6 principles of visual design for UX: Visual Hierarchy

The hierarchical structure of the software is distinguished by using straight lines, different layouts, different font sizes, and different colors. For example, between different sections, there is a straight line used to distinguish different levels (information, Rating&Review). The comments section uses a gray background. The location description section on the Popular page uses a gray gradient.

First Aid Screen(Jiayuan Chen)

Screens



Description

First aid page is Accessed from the home screen. Various articles show in first aid with the most visited articles on top. Clicking the image opens the full article for viewing, liking, commenting, and favoriting. Related articles shown at bottom.

Principle

principles of visual design for UX: Alignment

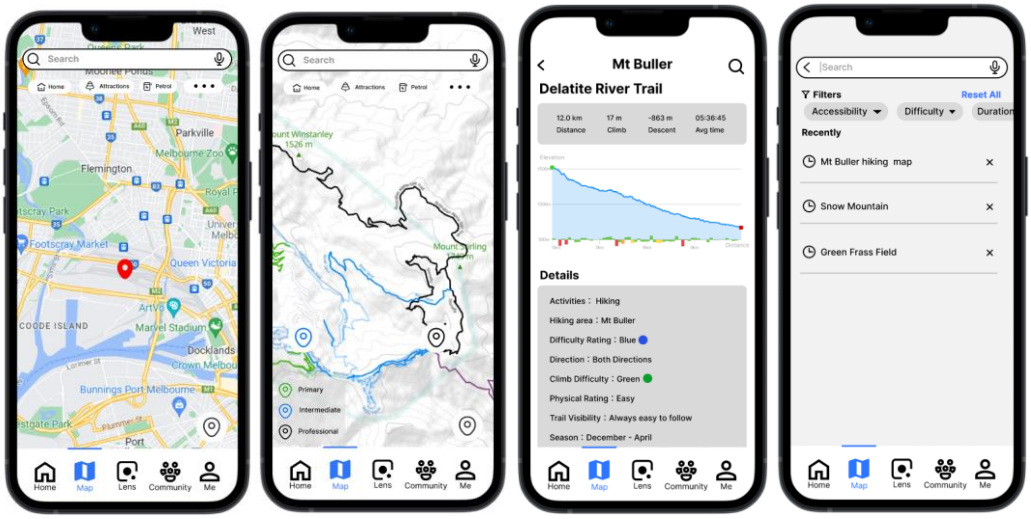
The top section is the largest section, and is the first thing we want users to notice on the screen.

Regarding the formatting of the various themed articles, I designed it to be two-by-two. This is also consistent with the #8 aesthetic and minimalist design, which has the benefit of creating visual hierarchy without burdening the user with cognitive overload.

Alignment in screen design enhances visual consistency, improves readability, and creates a sense of order and hierarchy.

Map Screen(Jiayuan Chen)

Screens



Description

Map screen: Simple design with search bar at the top. The map is movable, click the locate button to navigate to the user's location. Map generates routes of different difficulties for the searched location and shows the details.

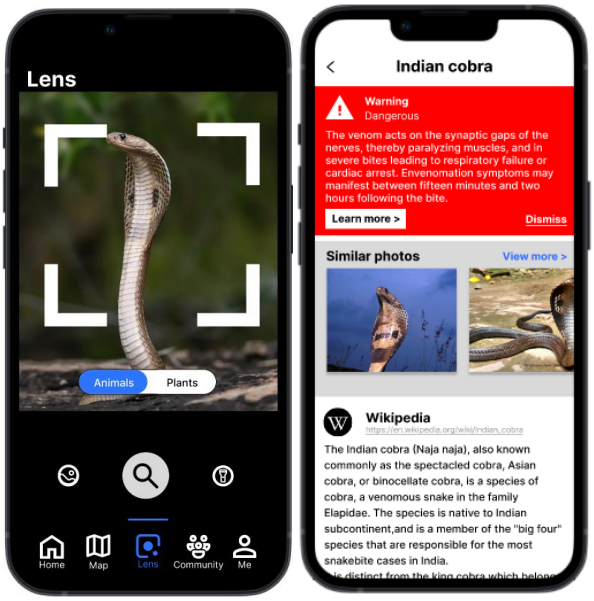
Principle

6 principles of visual design for UX: Balance

When designing the map interface I followed the Radial design principle from Balance. By extending out from the center of the screen, the majority of the screen is a base map. The benefit of this design is that the map becomes the focus of the screen, directing the user's attention to key elements and content on the screen. Thereby improving user experience.

Lens Screen (Jiangye Song)

Screens



Description

Lens screen can Identify species during hikes. Photos will be processed and take user to the search result page. Search result contains: Similar photo, Wikipedia description, warnings.

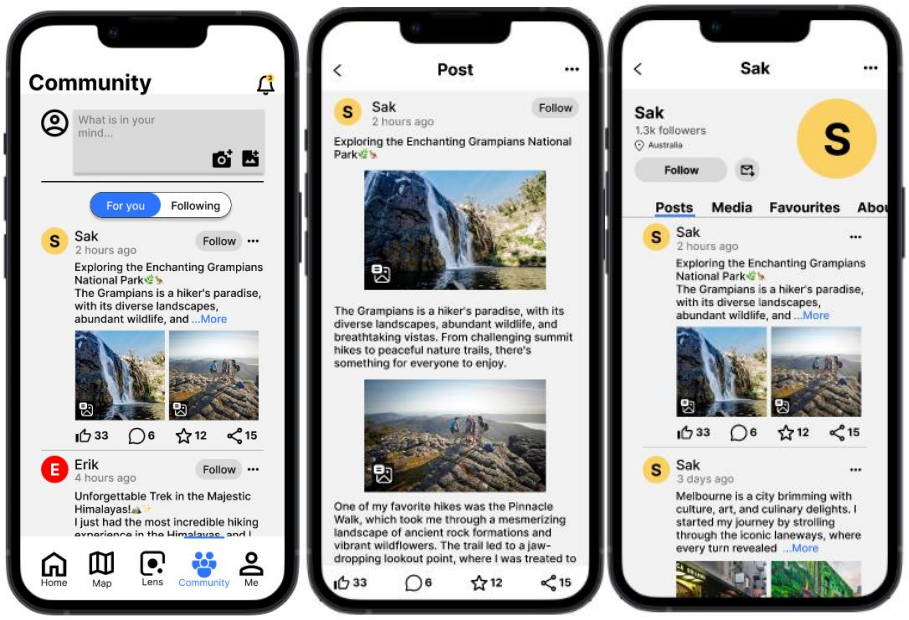
Principle

6 principles of visual design for UX: Contrast

If the creature is dangerous, the warning will appear. The colour of warning is selected to be red or orange which have a meaning of danger. This colour also ensures enough contrast to the white background and calls attention and provides cues to users.

Community Screen (Jiangye Song)

Screens



Description

Textbox-like button to create posts on top. Posts displayed in scrollable format. Each post has interactive buttons (like, comment, bookmark, share). Clicking on the post opens a detailed page. Tapping the author's profile photo leads to the user page.

Principle

6 principles of visual design for UX: Repetition

The community screen and user screen drive internal consistency. All the posts previews contain the same number of maximum words, maximum number of images and the reaction buttons. This kind of consistency will help to create familiarity within the application for users.

Accessibility Guidelines

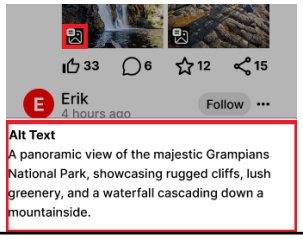
Perceivable

Contrast

The contrast of the application is high overall, with most of the text colour in black on white or light gray background (score 18.76 - 21). In the lens it is white on black (score 21).

Alternative descriptions

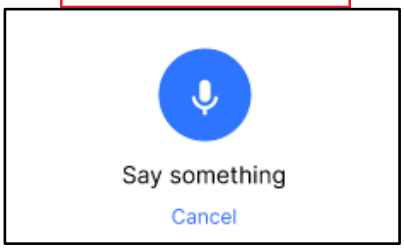
In the community page, images will include an alt text button, which allows screen readers to read the images as text.



Operable

Voice search

Voice to text function is available at every search bar. This function allows users with visual impairment or situational impairments to search easier.



Understandable

Multilingual

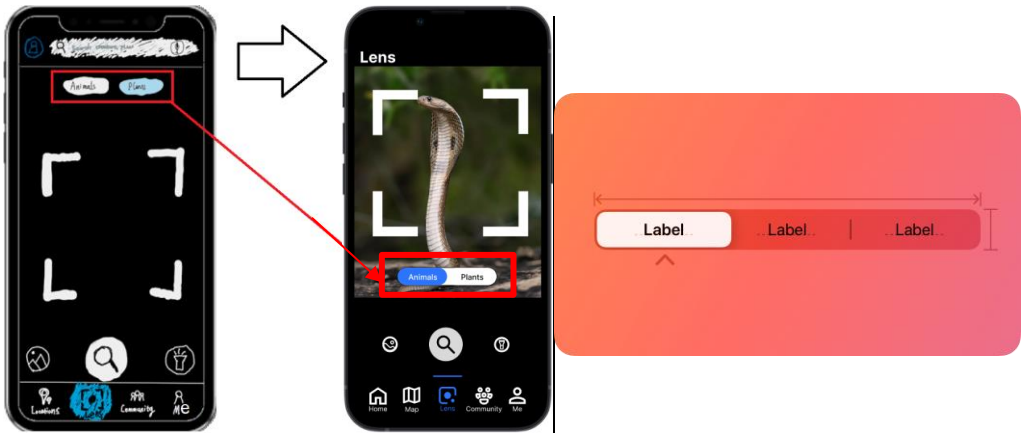
Due to the questionnaire responses, we collected many responses from China. Simplified Chinese has been added, making it easier for users from China to use and understand our software.

Changes

This section includes some improvements that our group made from the previous submission, the reason for the change (principle/theory) will be included.

Jiangye Song

The original design is closer to Android Material design, and our group has decided to use Apple Human Interface Guidelines. One of the main changes to the lens page is the colour scheme and the design of the Tab toggles. To keep consistency, the colour that indicates the tab selected has been changed to clear blue. The tabs options have been connected into a single rounded square to make it follow Apple's Guidelines more. The location has been changed to bottom as this will be easier for users to control this page using one hand only.

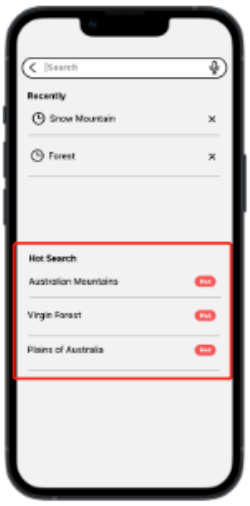


Jiayuan Chen

In the original search screen, we can find only the search history in the low-fidelity prototype screen. But in the high fidelity prototype, we added hot searches and recommendations.

The benefit of this design is that it allows users to quickly access popular or trending search queries without typing. It also reduces the possibility of misspelled or incorrectly searched queries by providing a hot option. This is in line with the design principle #6: Recognition rather than recall.

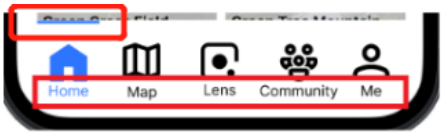
In addition, the inclusion of hot recommendations will give users new search ideas to enhance their experience and make our application more appealing to users.



Low-fidelity High-fidelity

Junhao Zhu

In the new main page, I commented that some changes were made to the bottom navigation system of the software. According to the concept of designing icons "Labels with icons improve usability and have a learning effect". Because the functions of the icons of the bottom navigation system are the main functions of the software, I added Labels to each icon of the navigation system. This can reduce the user's learning costs. Let users clearly know what each icon does.



low-fidelity *high-fidelity prototypes*

Heuristic Evaluation Result

Jiangye Song

Introduction

The evaluation will help us pinpoint areas for improvement, guiding us in making informed design decisions and enhancing the overall user experience of the hiking app. This section will undertake an evaluation process to assess its user experience and identify potential usability issues. Nielsen's heuristic evaluation has been used in this evaluation, it offers a systematic and rigorous approach to uncovering usability problems within a user interface. In comparison to user testing, it is much faster, cheap, and easier to coordinate.

Table of compliances

#	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification
1	The icon and label of the bottom navigation matches real word items	#2 Match between system and the real world	Figure 1: Bottom navigation bar	The tab name and label of the five components matches these real items in the real world: a human's house, a map in paper, lens of a camera, group of people and a person
2	The post page shows a confirmation box when the user typed and tried to leave the page	#3 User control and freedom	Figure 2: Warning of the unsaved post	This design will prevent users from losing what they have just typed if they hit back accidentally

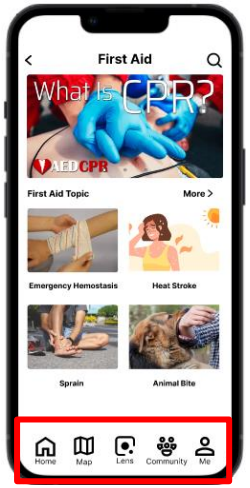


Figure 1
Bottom navigation bar

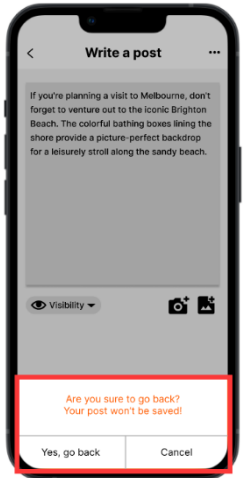


Figure 2
Warning of the unsaved post

3	Photo similar to the one that user take is shown	#5 Error prevention	Figure 3: Similar photo	The purpose of showing similar pictures is to let the user confirm that the currently displayed information is indeed the information of the creature the user wants to search for, not another creature that just happens to steal the spotlight
4	The locate button that centred the user's position	#6 Recognition rather than recall	Figure 4: The locate button	Users do not have to memorize the position of their current location, by tapping the locate button the map will centre the user's location for them
5	Minimalist design in Lens	#8 Aesthetic and minimalist design	Figure 5: The lens screen	The lens page does not show rarely used camera functions like ratio of the image, nightscape or timer
6	Notice of empty post	#9 Help users recognize, diagnose, and recover from errors	Figure 6: Notice user the post is still empty	The post button will "greyed-out" if the post is empty, and will notify the user by a pop up if they tapped on them.

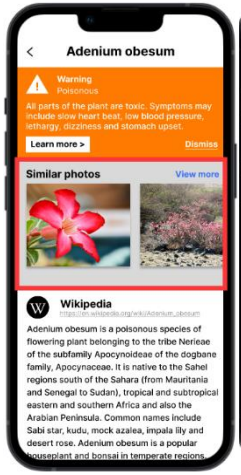


Figure 3
Similar photo

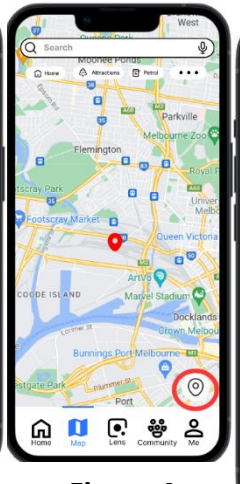


Figure 4
The locate button

Figure 5
The lens screen

Table of violations

#	Instance of Violation	Heuristic Rule	Evidence	Severity Rating	Recommendation
1	No scroll bar to show the reading progress in Reading in First Aid section	#1 Visibility of system status	Figure 7: A reading in First Aid page	1	Add a scroll bar or percentage to indicate the reading progress
2	The back buttons are not consistent and are violated to the Apple's Human Interface Guideline	#4 Consistency and standards	Figure 8: Back buttons and Apple's Design	2	Unite the back button design
3	Lack of quick gestures in popular for advanced users page	#7 Flexibility and efficiency of use	Figure 9: Popular page	2	Show a quick menu when user swiping a location (Figure 10)
4	Lack of help and documentation in home screen for first time users	#10 Help and documentation	Figure 11: Home page	3	Add help and documentation on home screen and show it when user open the app for the first time

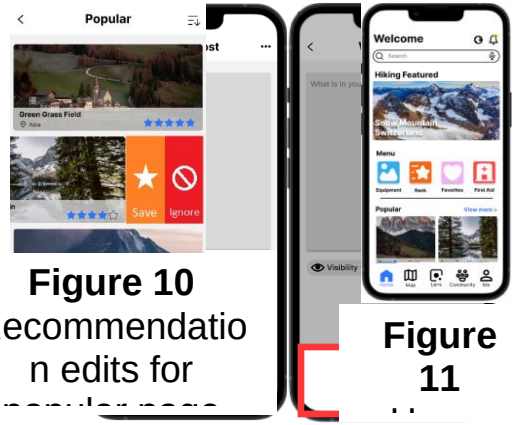


Figure 10
Recommendation edits for

Figure 11

Figure 6
Notice user the post is still

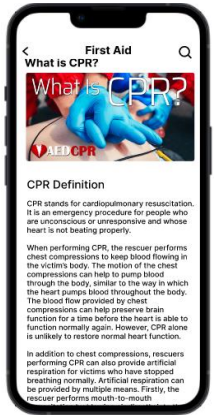


Figure 7
A reading in First Aid page

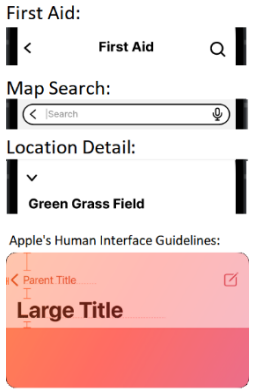


Figure 8
Back buttons and Apple's Design

Figure 9
Popular page

Description of violations and justification for severity ratings

1. No scroll bar to show the reading progress in the Reading in First Aid section:

While the lack of a scroll bar may not significantly impact the overall usability of the app, it does affect the visibility of the system status, particularly the reading progress. It will be useful if the user can estimate how much time will be needed for reading the remaining part of an article. While it is not a critical issue, adding a scroll bar or a percentage indicator would enhance the user experience and make it easier for users to track their reading progress.

2. The back buttons are not consistent and violate Apple's Human Interface Guideline:

The design of the back buttons are clearly enough but inconsistent. Although it shouldn't be confusing for users for most of the time, it deviates from established platform guidelines (Apple's Human Interface Guideline). It will be better to prioritize unifying the back button design to ensure consistency and alignment with the platform's standards.

3. Lack of quick gestures in the Popular for advanced users page:

While the lack of quick gestures may not severely hinder users' ability to use the app, including them can improve the flexibility and efficiency of use especially for advanced users. By incorporating quick gestures, such as showing a quick menu when users swipe a location, the user doesn't need to go to the location detail page and do their intended action. This is not a critical issue, but it is beneficial to address this to enhance the user experience.

4. Lack of help and documentation in the home screen for first-time users:

Home page of this app contains lots of information and the entrance of functions. The absence of help and documentation on the home screen for first-time users may feel unwell. Without clear guidance, new users may struggle to understand the app's features and functionalities, leading to frustration and potential abandonment. Providing help and documentation on the home screen is crucial to onboard users effectively and ensure a smooth initial experience.

Conclusion

The Nielsen heuristic evaluation process involved assessing the design against established heuristics, allowing us to uncover potential usability problems. Based on the evaluation conducted on our high-fidelity prototype for the hiking app, I have identified several usability issues that warrant attention and improvement. On the other hand, I have also identified some compliance with Nielsen

heuristic evaluation principles. In the next stage of the development, we should prioritizing the necessary improvements and implement solutions.

Jiayuan Chen

Introduction

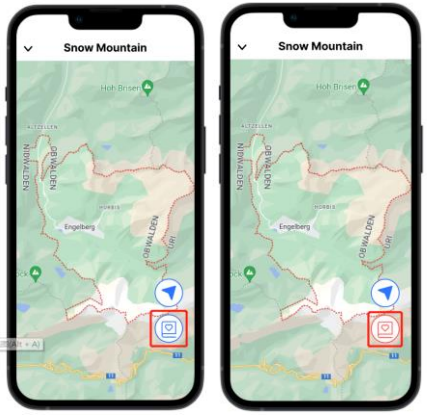
In validating the high-fidelity prototype our team created, I thoroughly examined the features it had and the user interactions. To ensure its usability, I used Nielsen's heuristic evaluation method. This evaluation technique is extremely valuable in helping to identify potential usability issues because it employs a set of heuristics or guidelines to systematically evaluate the prototype. By applying these heuristics, I can identify usability problems and gain insight into areas that need improvement, allowing me to create a more user-friendly and intuitive interface for selected tasks.

Table of compliances

#	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification
1	Location collection markers	#1	Figure 1&2 below	Figure 1 contains a blue location collection icon. When you click on the button, the blue icon changes to the red icon in Figure 2. This indicates that the user has bookmarked the location, and the user can also unbookmark it by clicking again, and the icon changes to blue again. This design brings a clear visual change to the user from the blue bookmark icon on the first screen to the red bookmark icon on the second screen. Users can more intuitively understand the consequences of this interaction. Using clear and predictable state transitions can enhance user trust in the application.

				When users clearly understand the state of the system, they can predict its behavior, make informed decisions, and adjust their behavior accordingly.

Figure1 Figure2



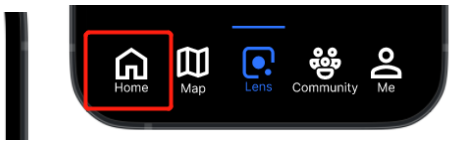
#	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification

2	Back and Home buttons	#3	Figure 3&4&5 below	User Control and Freedom gives users the freedom to explore and interact with the system. It provides the user with the ability to undo or reverse their actions, helping to prevent errors and mistakes. The first two screens show the back button we designed, which the user can click to return to the previous action. Figure5 shows the user can return directly to the main page by clicking the home button in the bottom navigation, preventing larger errors from occurring.

Figure3

Figure4

Figure5



#	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification

3	Back buttons	#4	Figure 3&4 above Figure 6&7&8&9 below	The back buttons on the screen are designed to be consistent, as an arrow with direction allows the user to quickly understand their purpose. Consistency and standard design theory ensure a uniform and familiar user experience throughout the system. It reduces user cognitive load by establishing predictable patterns and behaviors, increasing user confidence and trust in the system.

Figure6

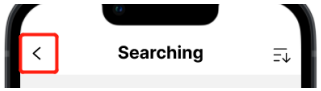


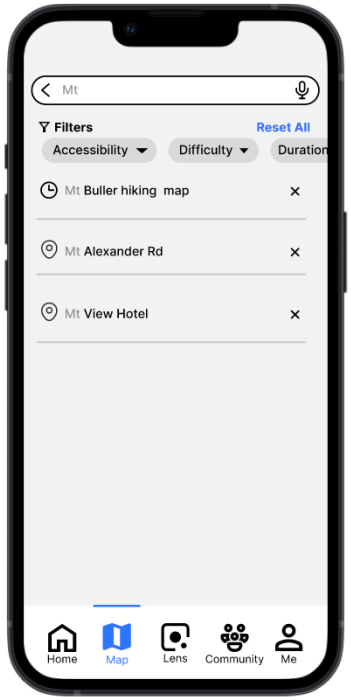
Figure7

Figure8

Figure9

#	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification
4	Offer Suggestions	#5	Figure 10 below	Figure 10 shows several search suggestions given when the user types 'Mt'. Search suggestions provide real-time suggestions to users as they type, improving search efficiency and preempting errors before they have a chance to make them. This is because search suggestions reduce spelling errors and provide alternatives for ambiguous or complex queries.

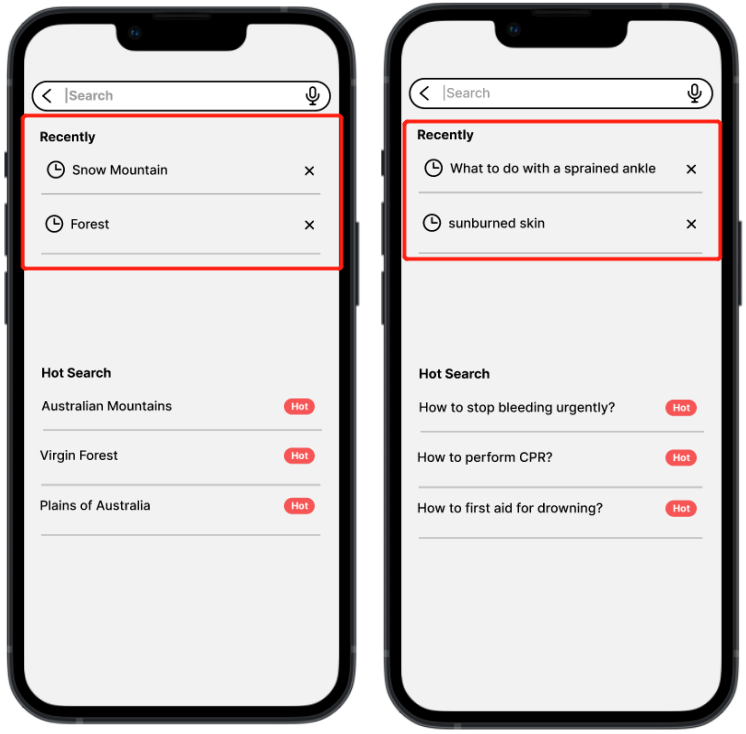
Figure10



#	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification

5	History and Previously Visited Content	#6	Figure 11&12 below	These two screens show the history and hot recommendations provided by the search interface. We show users the titles of pages they have recently visited in the search interface. These lists reduce the user's cognitive load because the user does not need to remember information they may have seen in the past or recall what a location may have been called. The advantage of this design is that it minimizes the need for users to remember specific details or information from memory and builds user confidence.

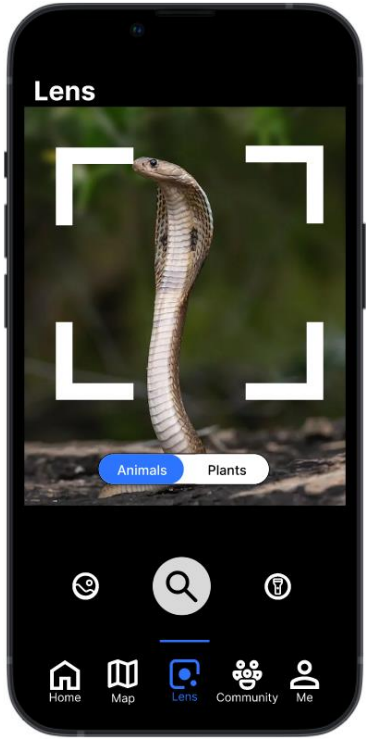
Figure11 Figure12



#	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification

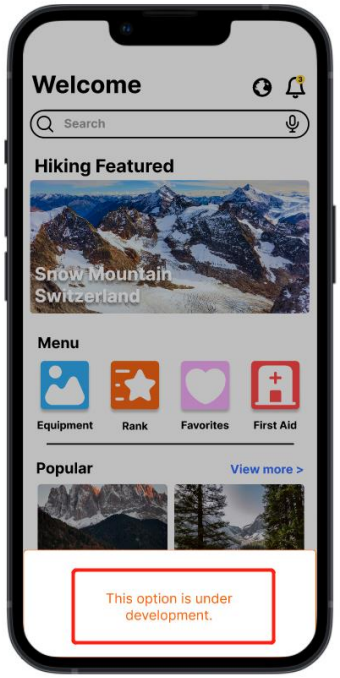
6	lens screen	#8	Figure13 below	This instance conforms to Aesthetic and minimalist design on the grounds that only the content identified by the user's shot and the bottom navigation appear on the screen. The advantage of this design is that the user can focus on basic content and tasks, thus enhancing usability and user experience.

Figure13



#	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification
7	Error messages	#9	Figure14 below	Figure 14 shows the error message 'under development' when the user wants to switch to another part of the language that is not yet fully developed. This clear message helps the user to quickly identify the error and understand its cause, reducing frustration and anxiety.

Figure14



#	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification

8	bottom navigation	#2	Figure15 below	Figure15 shows that the icons in bottom navigation are similar to real-world objects, and the most basic words are used to explain them. It increases user satisfaction and trust in the system, as users find it natural and intuitive to use. It also reduces cognitive load and user error, thus strengthening user confidence.

Figure15

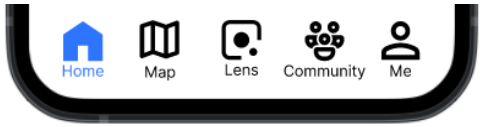
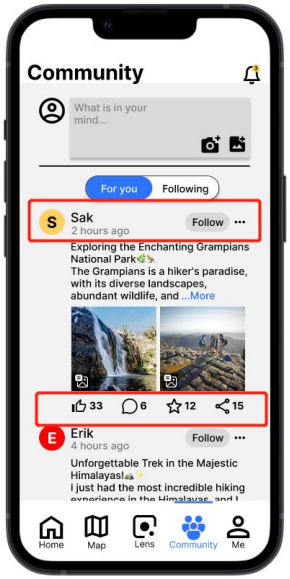


Table of violations

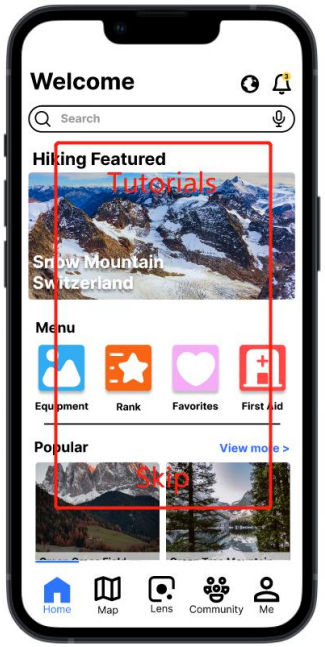
#	Instance of Violation	Heuristic Rule	Evidence	Severity Rating	Recommendation
9	Lack of shortcuts	#7	Figure 16 below	4	Improve the efficiency of use for advanced users

Figure16



#	Instance of Violation	Heuristic Rule	Evidence	Severity Rating	Recommendation
10	Lack of help documentation	#10	Figure 17 below	2	Provides guidance and support for users to use the product effectively

Figure17



Description of violations and justification for severity ratings

Violation Instance: Lack of shortcuts

Heuristic Rule: Flexibility and efficiency of use (Rule 7)

Severity Rating: 4.0

Description：

The application lacks shortcuts and flexible methods of operation in the high-fidelity prototype.

For advanced users, they need to use the same methods of operation as regular users to accomplish a certain goal.

Inefficient design can slow down advanced users, hinder their productivity and lead to frustration.

Based on the following three aspects, I have assigned a severity level of 4.0 to this instance of violation.

Frequency:

The lack of customizable features and easier operation may cause advanced users to frequently experience wasted time on non-essential tasks.

Advanced users may find themselves frustrated by the frequent inability to bypass a large number of strict and complex design choices, resulting in the inability to perform more frequent work.

Since the lack of shortcuts does not affect the average user, I would rate it at a 4.0 severity level in terms of frequency.

Impact：

Advanced users often seek streamlined and efficient workflows, and a lack of efficiency-focused design can hinder their ability to work quickly and efficiently. This brings them frustration.

So in terms of impact I would rate it at a 3.0 severity level.

Persistence:

On the Persistence side, the lack of a more convenient way to operate would allow advanced users to consistently use our application in an inefficient environment.

In addition, the lack of a design focused on flexibility and efficiency hinders user productivity, impedes growth potential, and makes it difficult for the average user of our application to become an advanced user.

So in terms of persistence I would rate it at a 4.0 severity level.

Violation Instance: Lack of help documentation

Heuristic Rule: Help and documentation (Rule 10)

Severity Rating: 2.0

Description：

The design theory of Help and documentation is missing in our high-fidelity prototype.

Without a design theory focused on help and documentation, users will face challenges in learning and mastering the product, thus hindering their overall user experience.

The lack of user-friendly and accessible documentation may prevent users from fully exploring and utilizing the features and functionality of the product.

Frequency:

Users may often have difficulty finding the information they need due to a lack of well-designed help and documentation. This can lead to frequent confusion and misunderstanding.

Especially for novice users, the lack of user-friendly and accessible documentation can lead to a negative experience as they become frustrated and struggle to grasp the product or service.

Therefore my severity rating in terms of frequency is 2.0.

Impact：

The lack of comprehensive help and documentation can lead to confusion and difficulty in solving problems or understanding complex concepts, making it difficult for users to develop a unified understanding of the product or service.

However, I think users become more proficient as they continue to use the application, so I think it is possible for users to overcome this difficulty by practicing and using the application.

I give the severity rating of 1.0 in terms of impact.

Persistence:

I do not believe that problems are persistent and can be solved once users become familiar with the functionality of the application or seek help from outside resources.

However, the lack of well-designed guidance can still lead to user dissatisfaction, and continued reliance on external resources can create ongoing limitations on the effective use of the product or service.

I give the severity rating of 2.0 in terms of persistence.

Conclusion

I identified the legitimate instances as well as the offending instances that appear in this high-fidelity prototype based on Neilsen's 10 heuristics. For each heuristic, I have identified one or more screenshots as examples to demonstrate and analyze. The analysis provides a good understanding of the strengths and weaknesses of this high-fidelity prototype.

Finally, I analyzed the two examples of violations I found and assessed their severity levels in detail, highlighting how they negatively impacted users and our application in the marketplace.

All in all, the main goal of this report is to improve the problem through analysis and to improve the overall sustainable usability of the application while giving users a better experience.

Junhao Zhu

Introduction

In order to verify the rationality of the high-fidelity software prototype made by our team, I u
fidelity prototype for a period of time. Since I don't have a lot of experience testing high-fide
Nielsen's 10 general principles as inspiration and reference. Verify and evaluate the software
principles, and find out the unreasonable and impractical parts of the software.

Table of compliances

No.	Instance of Compliance	Heuristic Rule	Evidence	Design choices justification
1	know what page this is	#1	Figure 1-3	Improve the feedback of the navigation system and let users clearly understand the page they are on.
2	back button	#3	Figure 4&5	convenient for users to exit the current page and return to the previous page

Figure 6&7

The scale and typesetting of the home screen are similar to other main pages

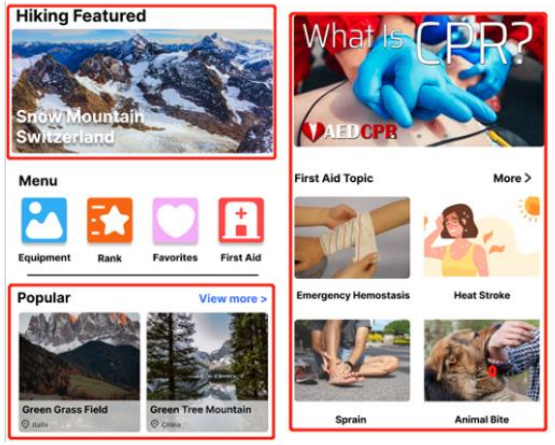
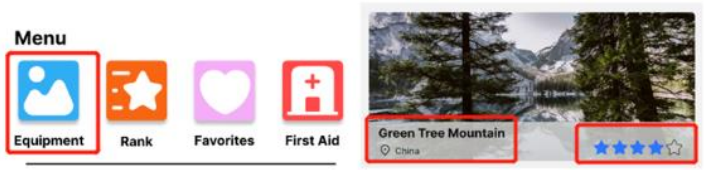


Figure 8&9

A save button on the location detail page, A favorite button on Home page

Figure 10&11

labels for interfaces



3	Same scale and layout	#4	Figure 6&7	Maintain page/style similarity and reduce cognitive load for users
4	Favorite place	#6	Figure 8&9	The location Info that the user has save can be viewed in Favorites
5	minimalist design for interfaces	#8	Figure 10&11	Interface only provides important information (e.g., title)
6	Tips for errors or warnings	#9	Figure 12（next page)	an error or special situation occurs, an orange window pops up to prompt
7	Sorting function and filter function	#7	Figure 13&14（next page)）	allows users to find what they want more precisely
8	Commonly used phrases and words as titles or labels	#2	Figure 15-18（next page)	Use commonly used languages to reduce user confusion and learning costs
9	Hot Search in search page	#5	Figure 19（next page)	Provide some popular searches and give users some recommended input options to avoid mistakes

Figure 12

an error when the user selects an option that has not yet been developed

Look up details

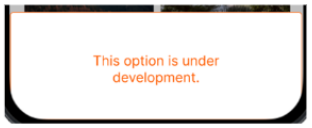


Figure 13&14
The sort button is in the popular category, and the filter buttons in the search interface

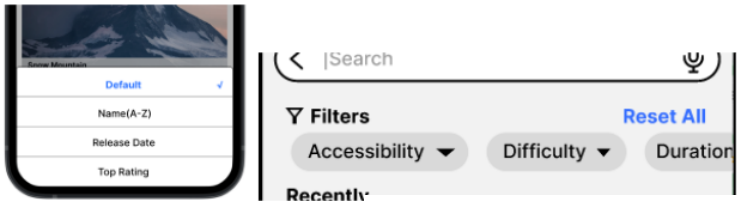


Figure 15-18
some titles and labels in the pages

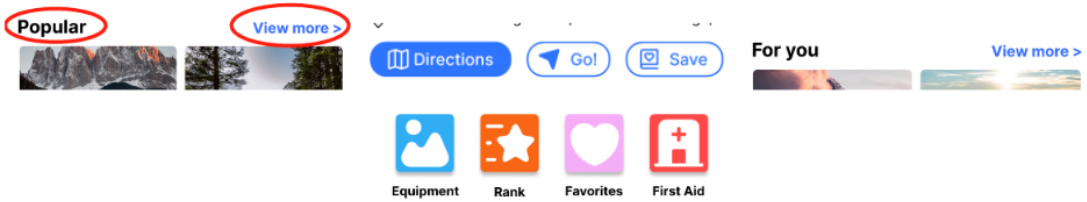


Figure 19

Ho search in search page

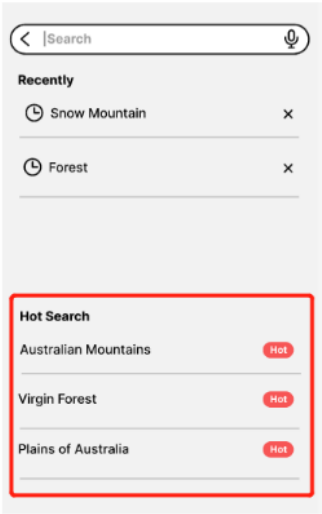


Table of violations

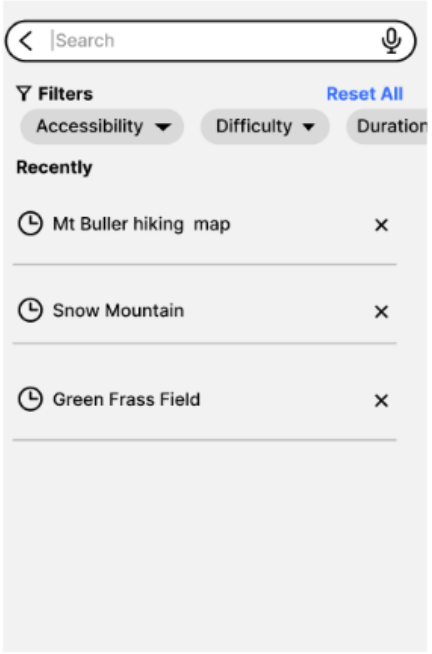
No.	Instance of Violation	Heuristic Rule	Evidence	Severity Rating	Recommendation
1	Back buttons are not uniform	#4	Figure 20&21	1	Unify all back buttons into left arrows
2	Missing help documentation	#10	There are no help or support buttons on any page	4	Add a help button or online customer service help function
3	missing default values on map page search bar	#5	Figure 21	3	Add default value to search bar

Figure 20&21

Back button for location detail and Back button for First Aid

Figure21

Search page in map page



Description of violations and justification for severity ratings

Violation Instance(No.1): Back buttons are not uniform

Heuristic Rule: #4 Consistency and standards **Severity Rating:** 1

The back button for location details is inconsistent with the back button for other screens. The back button for location details has an arrow pointing down, while the back button for other pages has an arrow pointing left. Such a design violates the fourth principle of Nielsen's 10 general principles, Consistency and standards. Such a design may make users wonder whether the two buttons with different orientations mean the same thing, that is, return to the previous interface. This unnecessary misleading should be reduced in software.

I give this problem a Severity Rating of 1, because the occurrence rate of this problem is not high (only on the location detail page), and the impact is not great. In addition to using the back button that comes with the software, the user can also use the back button of the mobile phone to return, such as the return button of the Android phone, and the return gesture (swipe left or down) of the Apple phone. However, I still recommend adjusting all back buttons when time permits, so as not to confuse users.

Violation Instance(No.2): Missing help documentation

Heuristic Rule: #10 Help and documentation **Severity Rating:** 4

After some testing, it turned out that the help documentation was missing from our software. According to the tenth principle of Nielsen's 10 general principles, we should provide users with a help guide or documentation to help users understand how to complete their tasks. And this help guide should be easy to search for.

I give this issue a Severity Rating of 4 because I think this issue has a high impact and needs to be dealt with urgently. If there is no help guide, it is difficult for users to find solutions to any problems that arise when using our software. Serious cases may cause users to give up using our software. In order to solve this problem, I suggest adding a help guide button in an obvious place of the software, such as the top of the screen, or the search bar. And the software can also add a customer service help button, using online customer service or AI assistant to help users solve any problems on the software.

Violation Instance(No.3): Missing default values on map page search bar

Heuristic Rule: #5 Error prevention **Severity Rating:** 3

During testing, I found that our map search interface lacked default values. According to the fifth principle of Nielsen's 10 general principles, software should prevent errors from occurring, or check them and provide users with the option of confirmation before submitting operations. For the case of the search bar, we should provide a default value to help users understand how to conduct an effective search and prevent search results from being different from what users expected.

I gave this issue a Severity Rating of 3. This problem only occurs in the search on the map page. Other search pages provide a reference value of popular searches for user reference. But the map page is one of the important functions of our soft decoration. Users will use this page frequently, so it may have a relatively large impact. I suggest that on the basis of maintaining unity with other search interfaces and adding popular searches, display some default values in the search bar, such as Monash. Give users a good reference value to prevent search errors.

Conclusion

In conclusion, Nielsen's 10 general principles gave me good design inspiration and helped me effectively evaluate the overall design of the software. By using Nielsen's 10 general principles, I found some potential problems and usability problems that need to be modified in the high-fidelity prototype we designed, such as the lack of help documents in the software, and the inconsistent style of some buttons in the software. After this evaluation, I have a clear direction for the next modification of the software, which improves the overall feasibility of the software.

Evaluation Summary

Similarities and Differences

After some discussion, we found that we found some of the same Instances of Violation and a few different Instances of Violation. First, we all agreed that the software lacked a help document, lacked quick gestures or shortcuts for advanced users, and the back button was inconsistent. Then, we also found some different Instances of Violation, such as missing scroll bar for reading progress, and missing default values on the map page search bar.

We then aggregated and discussed all the questions and gave the average score in the following table:

Description of Issue	**Heuristic #**	**List Individual Severity Scores**	**Average Score**
The back buttons are not consistent	#4 Consistency and standards	1,2,2	2
Lack of quick gestures or shortcuts for advanced users	#7 Flexibility and efficiency of use	2,4,2	3
Lack of help documentation	#10 Help and documentation	3,2,4	3
No scroll bar to show the reading progress in Reading in First Aid section	#1 Visibility of system status	1,1,1	1
Missing default values on map page search bar	#5 Error prevention	3,2,2	2

Most severe violations

After discussion, we think the most important violations are:

1. Lack of help documentation

   We decided to add help and documentation on the home screen and show it when users open the app for the first time. Also, add a help button on the main page, so that users can view help documents at any time.

2. Lack of quick gestures or shortcuts for advanced users

   Add a shortcut menu and some shortcut gestures, such as showing the shortcut menu when the user slides the position

3. The back buttons are not consistent

   Unify the back button design according to established platform guidelines (Apple's Human Interface Guideline) to ensure consistency and consistency with platform standards.

Conclusion

In summary, our high-fidelity prototype contains a home screen, recommended locations feature, first aid knowledge feature, map feature, community feature, and lens. our team, after comparing and analyzing individual legitimate and offending examples, concluded that Lack of help documentation, Lack of quick gestures or shortcuts for advanced users and The back buttons are not consistent are the three most serious violations present in this high-fidelity prototype.

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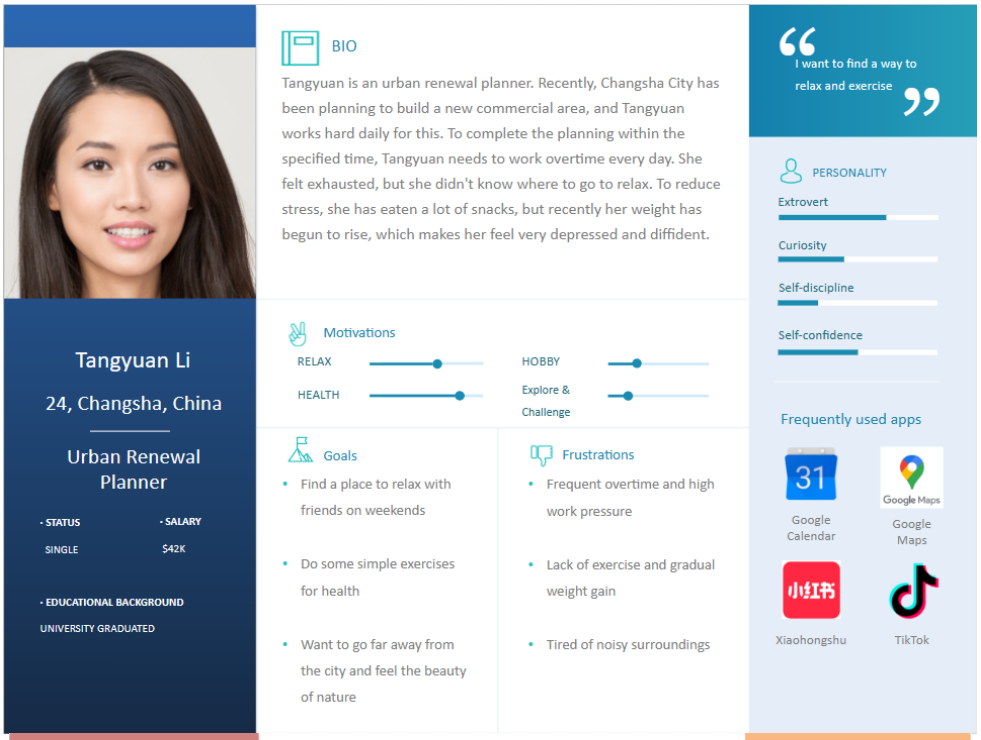
Appendix

Submission 1:

Junhao Zhu:

1. Two user personas



2. Five user stories

1. As Elma, I want to get route recommendations so that I can better plan my course of action

   Must
   Our software is a hiding trail application, so route recommendation is a required feature, otherwise this software will not succeed

2. As Elma, I want to choose my hiking equipment, so that I can go hiking in different places more easily.

   Should have
   This function is very useful and can help many people choose suitable hiking equipment based on different hiking locations. According to the feedback from the questionnaire, about 61% of the users hope to have this function.

3. As Tangyuan, I want to learn some first aid knowledge, so that I can protect myself in times of danger

   Should have
   Walking on high plateaus or snowy mountains may encounter some dangers. This function can help many people in times of crisis. I think this function should be implemented

4. As Tangyuan, I want to know how many calories I consume, so I can reasonably plan my weight.

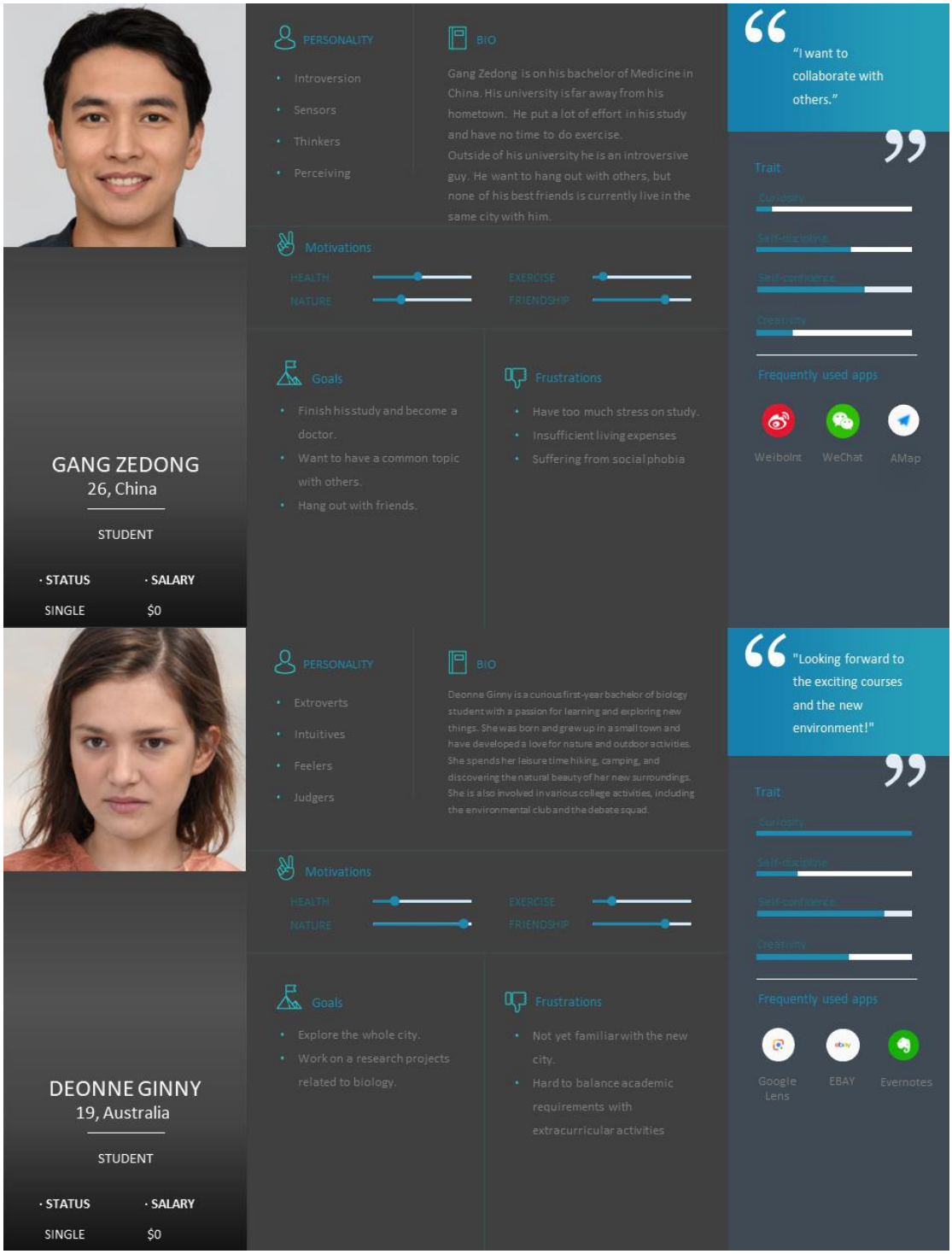
   Could have
   It is a good function to record the calories consumed by the user or the number of walking steps taken by the user, but the mobile phone needs to support the corresponding function or be linked with the smartwatch. If have time, we can implement this function.

5. As Elma, I want to share my hiking photos so that I can meet more friends online

   Could have
   This feature allows users to share their hiking experience and discuss it with other users, which is very helpful for promoting hiking. If have time, we can implement this function.

Jiangye Song

Persona



User stories

Submission 1 to 2: To make the user story and the hiking topic more relevant, the way of expressing some content has been changed.

Submission 2 to 3: No change.

1. As Gang Zedong, I want to make friends who like hiking as well on the Internet so that I can have more friends in daily life.

SHOULD HAVE: Most of the people in the survey prefer to go hiking with others. Making functions like forums can increase people's demand for hiking.

2. **From submission 1**: *As Gang Zedong, I want to talk to an artificial intelligence who can help me plan my journey.*

From submission 2: As Gang Zedong, I want to create a plan of my journey fast and easy.

COULD HAVE: This function might be useful but will be costly. This optional function can be implemented later.

Deonne Ginny

3. As Deonne Ginny, I want to identify the species of creatures through the camera, so that I can get more knowledge about nature.

SHOULD HAVE: Creature Recognition function can not only help users to have more interest in hiking, but also can protect users from danger if they witness a dangerous creature.

4. **From submission 1**: As Deonne Ginny, I want to list out the famous places that are able to enjoy nature so that I can plan and go hiking when I am free.

From submission 2: As Deonne Ginny, I want to list out the hiking places that are can relax me so that I can plan to go there when I am free.

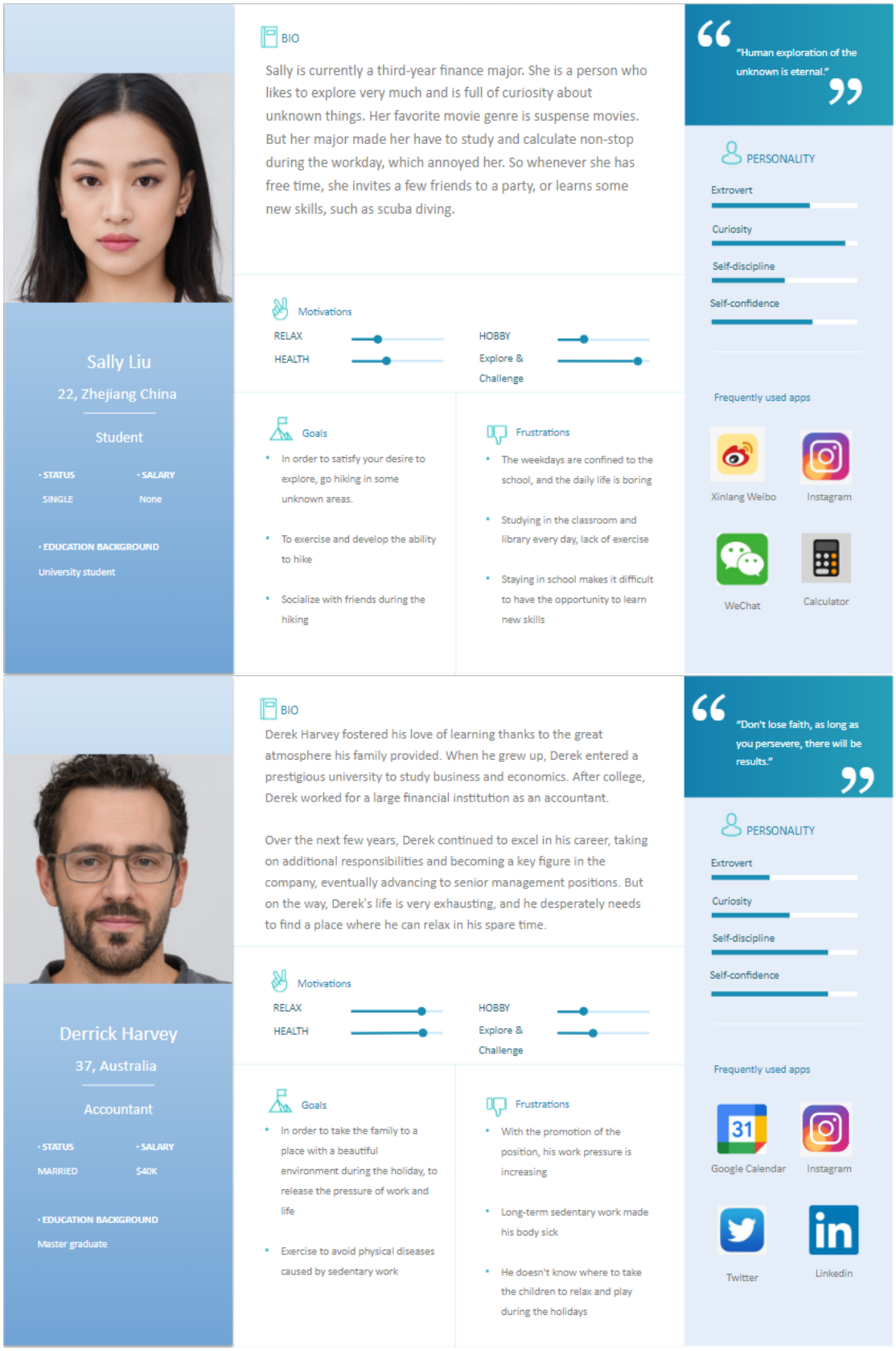
MUST HAVE: As a hiking application it must keep generating recommendations to stimulate its user to go hiking. Also, 67.8% survey participants have recommended this function.

5. As a Deonne Ginny, I want to request to go hiking in a local conservation area to get closer to nature.

WON'T HAVE: Request entering a local conservation area should not appear as a function on a public mobile application.

Jiayuan Chen

personas



user stories

1.*As* Sally, *I want to* get detailed maps and trail information, *so that* I can better plan my hiking routes.

Must
It is a necessary function to provide users with accurate GPS navigation and all map details that can help users better plan their routes. In our survey feedback, nearly 90% of people want to launch this feature, so the existence of this feature can prove that our application is successful.

2.*As* Sally, *I want to* share my route and experience with other users, *so that* I can meet more hiking enthusiasts and learn the experience and knowledge provided by others.

Should
This is an important function, which allows users to find people with the same hobbies, interact with them, and increase their dependence on the product. Users can learn knowledge from the community function, and developers can also get user feedback on products from the community, so I think this is a very important function.

3.*As* Sally, *I want to* identify the species of creatures through the camera, *so that* I can get more knowledge about nature.

Could
This is an ideal feature, as time permits, we will launch this feature as much as possible to help users identify creatures and satisfy their curiosity and desire to explore.

4.*As* Derrick, *I want to* create custom routes, *so that* I can have a more comfortable hiking route that suits me.

Should
This is a relatively important function. Users can customise unique travel routes according to the number of travellers, physical condition, and type of play.

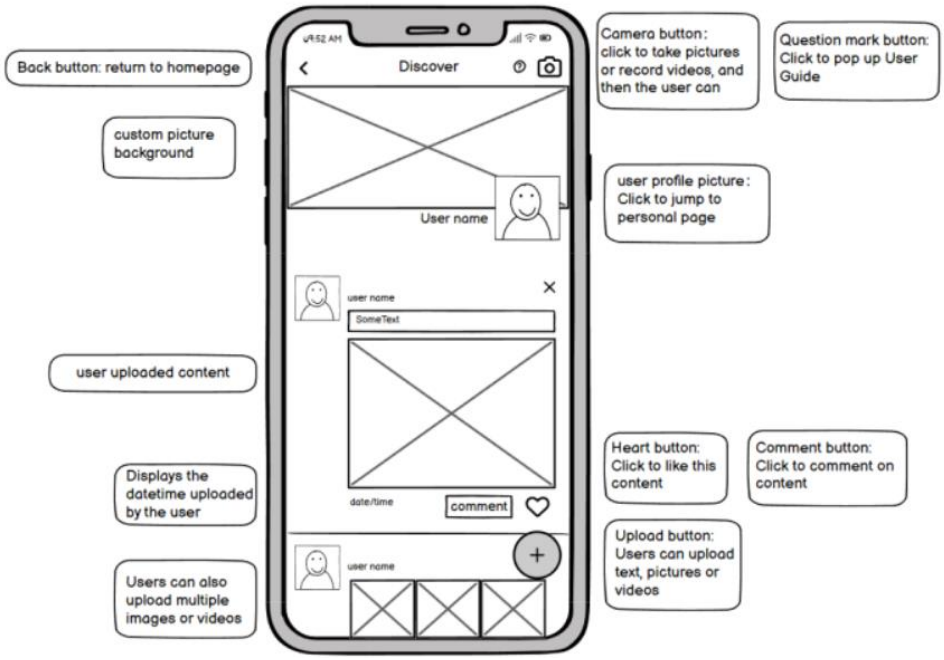
5.*As* Derrick, *I want to* study how to hike, *so that* I can get a better hike experience with the family.

Could
Adding the Hiking guidebooks function is not a required function, but it can provide very helpful suggestions and guidance for novices.

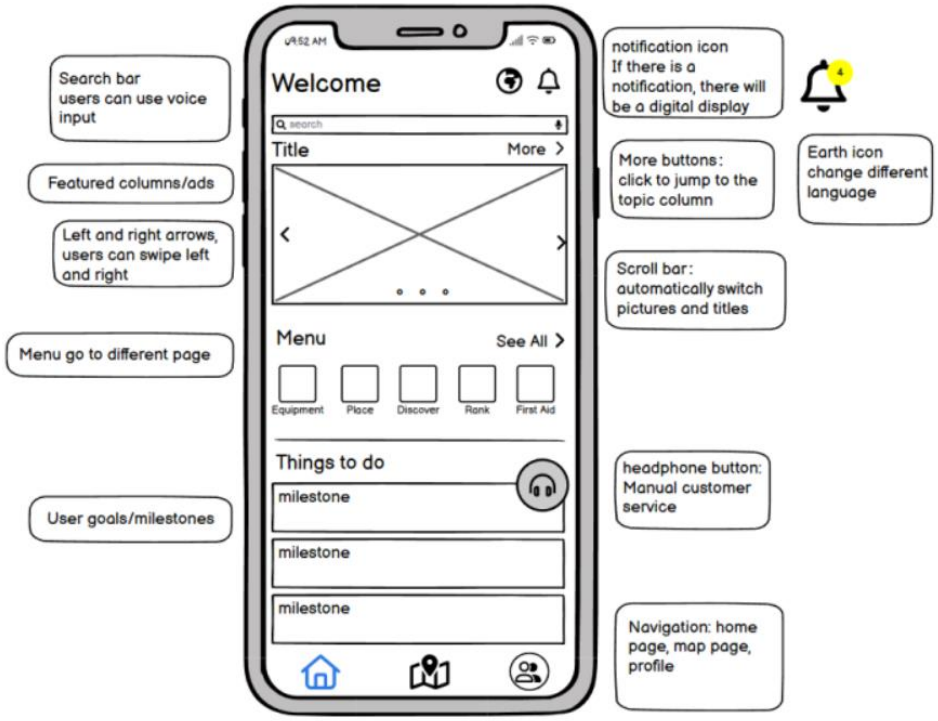
Submission 2:

Junhao Zhu

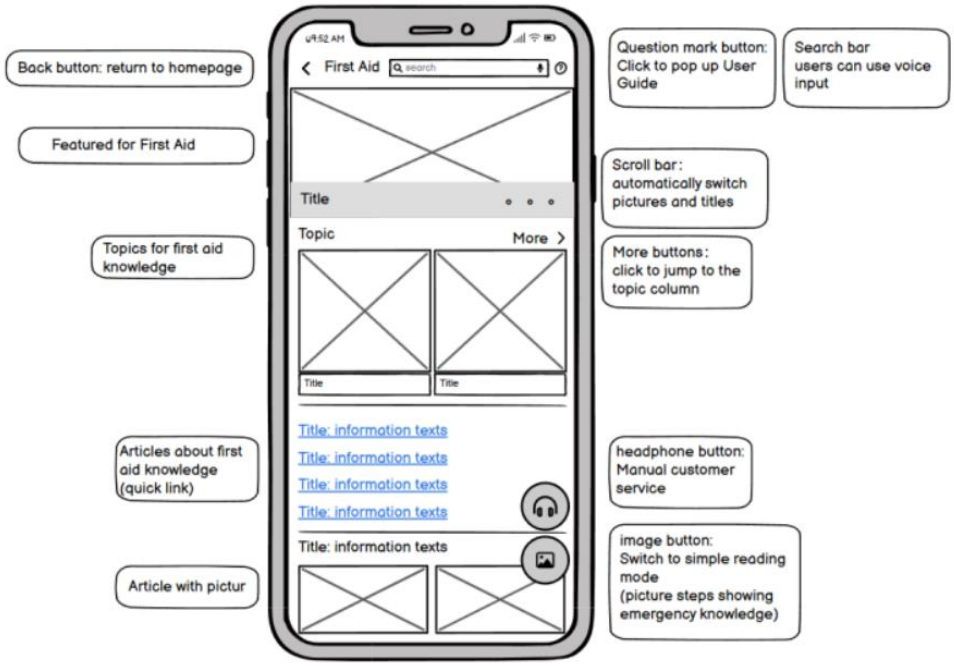
Discover page:



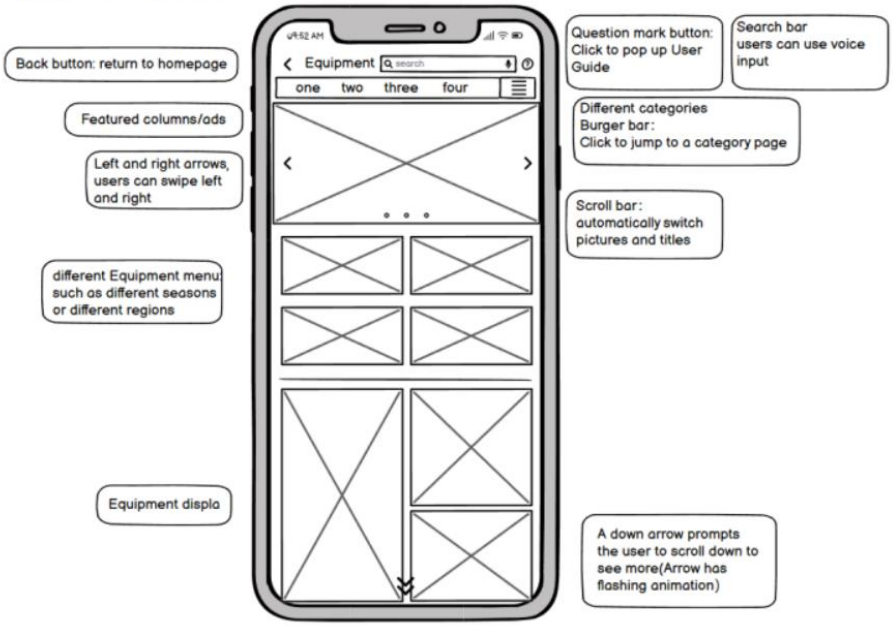
Home page:



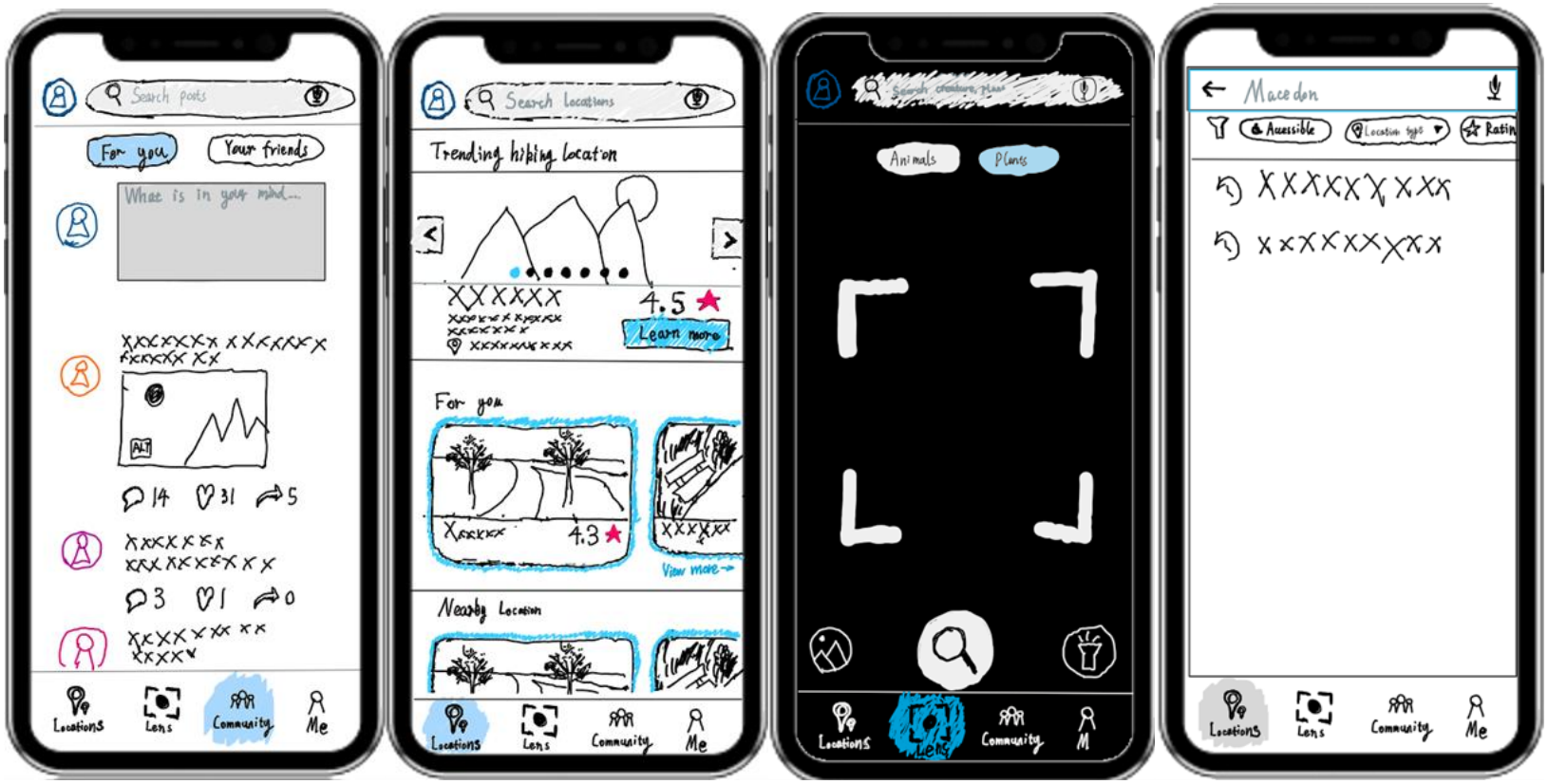
First Aid page:



Equipment page:



Jiangye Song



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