

GR1 Analysis

Group Members:

- Het Patel
- Aliza Lisan
- Rahul Chatterjee
- Ryan Chang

Problem Statement:

Spending time with peers exploring nature can be a fun, healthy, and memorable experience. However, having to take the time to identify all the important details such as choosing a hiking area or which exact path can be an obstacle in the way of this fun outing.

Looking into the various aspects of a hike can begin to pile up with all the different factors to consider. Figuring out the route and whether or not it is suitable for your hiking group. Would it be ok to bring kids or pets along for this trip? What do past hikers or park staff have to say about this particular route and what level of hiking experience (from new to hiking to strong familiarity) would be recommended to have before giving it a go? Another detail you may want to know is how long your trail is so you can properly plan out your schedule. You would probably prefer not having to dive into the muck of all these details every time you want to explore nature and instead focus your energy into actually enjoying your hiking time.

The act of researching itself can also be a hassle for prospective hikers. Clicking and reading through different websites from authors with varying degrees of experience (and writing skill) can create inconsistencies that incorrectly influence your plans. There's no standard or organization for these reviews as well as no accountability to make sure they're up to date with the information they're providing to readers on the area. Inaccurate data can lead to a lackluster trip or even worse, put you and your group in circumstances you're not prepared for. Situations such as these can and should be prevented in order to continue the great activity of hiking.

Observation and Interviews:

- **Interview 1**

Interviewee details and Narrative: The interviewee is a 25 year old male who is an outdoor enthusiast and fitness addict. He goes to the gym regularly but resorts to outdoor physical activities for a change and especially in the times of the pandemic. The interviewee went for a hike last summer but claimed to have no information about it other than the name of the trail itself. Since he wasn't very well informed at the time of his last hike, he expressed the need to know more about the trail's steepness, length and weather conditions in the area. Moreover, he mentioned that due to regular physical activity, he happens to have a higher stamina as compared to his peers and often ends up hiking alone ahead of others in the group. This always made him want to have more information

regarding the safety conditions of the trail in terms of wild animals and emergency contact information. Other than Google/Internet search being his only source of information, he would like to know from experiences of other people who have been to the same hiking trail. We also asked him what information he plans to have ahead of his next hike and how he plans to collect it. Altogether the interviewee mentioned the following points in answer to that:

- The trail's steepness
- The length of the trail
- Weather conditions in the area
- Safety conditions in terms of wild animals
- Nearby emergency contact information
- Reviews by past hikers

- **Interview 2:**

Interviewee details and Narrative:

The interviewee introduced himself as a 27 year old man who only goes for a walk, run or hike because otherwise he gets sad or lazy. He does so because he doesn't want to get into health related problems and to control his weight to some extent. He likes to challenge himself when it comes to outdoor activities but not something too extreme. On his last hike six months ago, he wasn't aware of anything other than the weather in that area and relied for the rest upon his friends. Because of the lack of information he only kept water and some snacks with him but plans to google himself next time. A unique thing mentioned by this interviewee is that he would like to have information about the mountains and/or lakes one can see after reaching the pinnacle of the hiking trail. He mentioned that usually no one knows their names and thus the curiosity remains. Other than that, he wishes to have the following information at hand before going out for another hike in the future:

- Points or level of danger i.e. where there is a risk to slip etc.
- Potential danger of wildlife presence
- Nearby base stations
- Emergency contact information nearby

- **Interview 3:**

Interviewee details and Narrative: The interviewee is a 23 year old male, who is a travel enthusiast and a globetrotter. He does some sort of physical activity 6 times a week whether it is going outside for a run or lifting weights. The interviewee went on a hike 2 months ago and he planned his hike from the national park government website. As he usually never has enough information in advance about the trek, other than seeing pictures on instagram, the only preparations he is able to make for his hike is taking some snacks and several water bottles. There have been instances in the past where the interviewee has regretted his decision of going on a hike. The interviewee claimed that he plans his trip by going on the National

Park website and doing some research regarding the trip. When asked about what information he would like to have before embarking for a trek/hike, the interviewee mentioned the following:

- How long would the hike take?
- How many miles round trip?
- How is the wildlife situation?
- Mosquitos?
- Dog friendly?
- What kind of a trek is it?
 - Flat, mountainous...?

The interviewee later stated that, “a lot of research goes into planning a hike and in order to save people’s time from doing all the extra work, I post blogs about every place I visit and rate every place including restaurants, hotels, etc. Follow me on instagram ([@mrshutterup](#)) for your travel needs and check out my website (<https://mrshutterup.com/>)”

User Classes:

- Newbie
 - Adults (all ages)
 - Average lifestyles
 - Average computer skills
 - Excited to learn new tips/tricks
- Hobbyist
 - Adults (all ages)
 - Healthy lifestyles
 - Average computer skills
 - Knows what they’re getting into

Goals:

1. Display the difficulty level of a hike (Beginner, Intermediate, Advanced)
2. Ability to look up trail length (Distance and estimated time)
3. Easily look up reviews from past hikers
4. Look up if a trail is pet friendly
5. Warnings to the user of any dangerous wildlife
6. Look up weather forecast in advance

GR2 Design

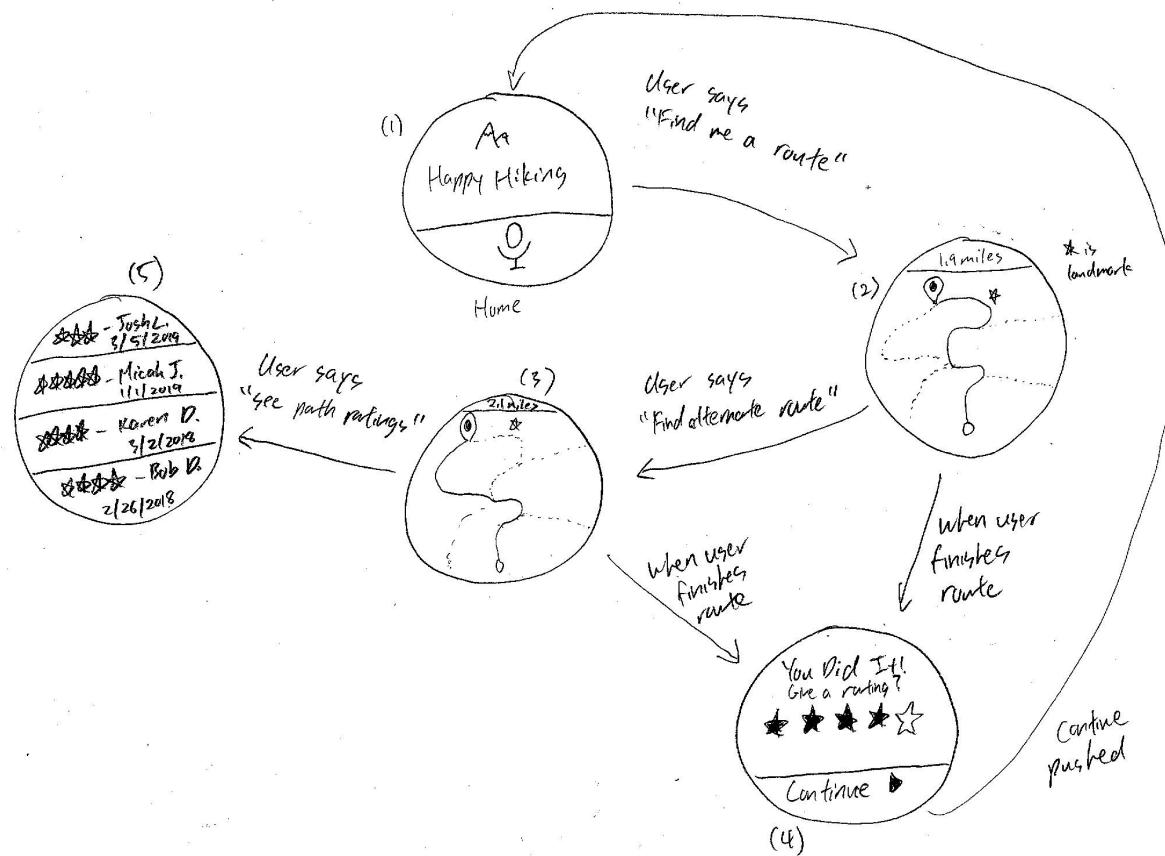
Scenario:

Hammad is a 25 year old computer scientist who works in the technology industry. He tries to maintain a healthy lifestyle and goes to the gym regularly. Once in a while, he plans hiking trips with his friends over the weekends or on vacations especially in the times of COVID-19 pandemic. He always finds it hard to choose the hiking trail that best fits his and his friends' needs since various information is scattered over the internet. He does not like to spend a lot of time researching before going on a hike and continues looking for a reliable source of information regarding length of the trail, difficulty level, time to complete the hike, expert reviews, etc. He recently heard of a website "HappyHiking", so he decided to check it out. He makes a search on the website regarding the hiking trail he plans to explore with his friends soon. He notices that he found all the information he was looking for at one place and with a single search. Reviews by different hikers also helped him decide better about preparations for his upcoming hiking trip. He has got friends who have a hobby of frequently going for hiking and camping. Earlier they were posting on their social media accounts about their different hiking experiences but now they post reviews on "HappyHiking" which is helpful for hiking enthusiasts and novice hikers like him.

Individual Sketches:

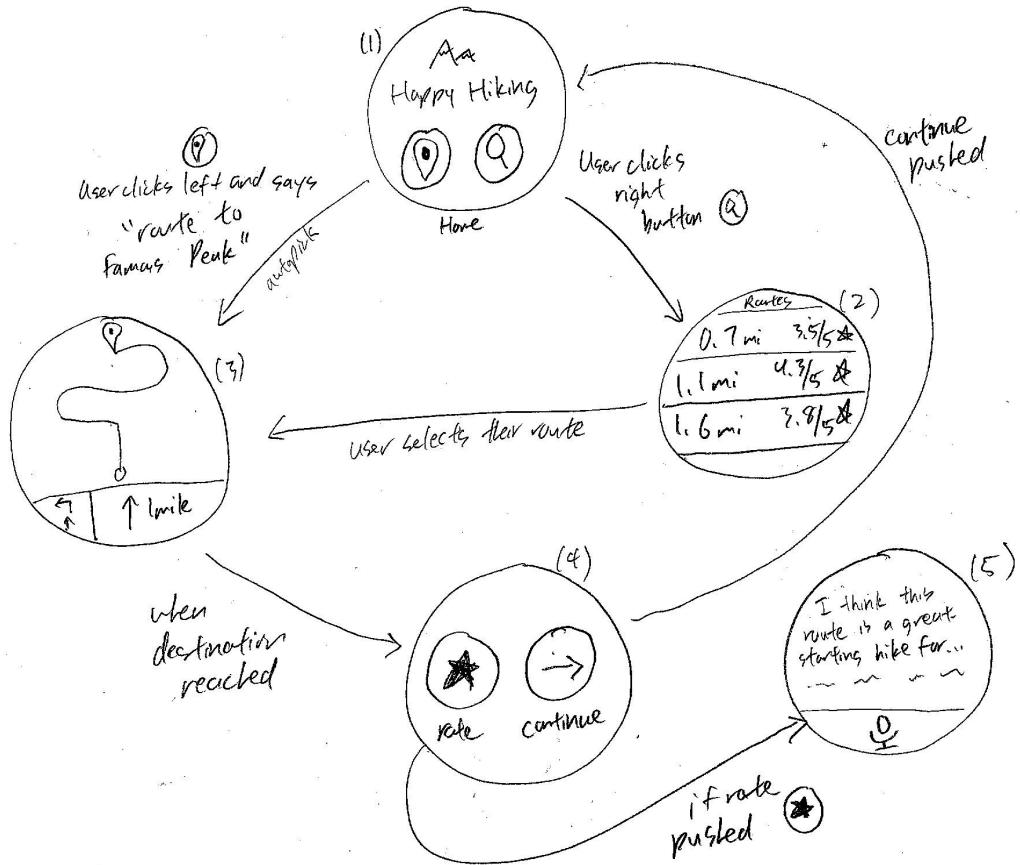
Ryan (tiny screen (smart-watch) extreme):

Design 1:



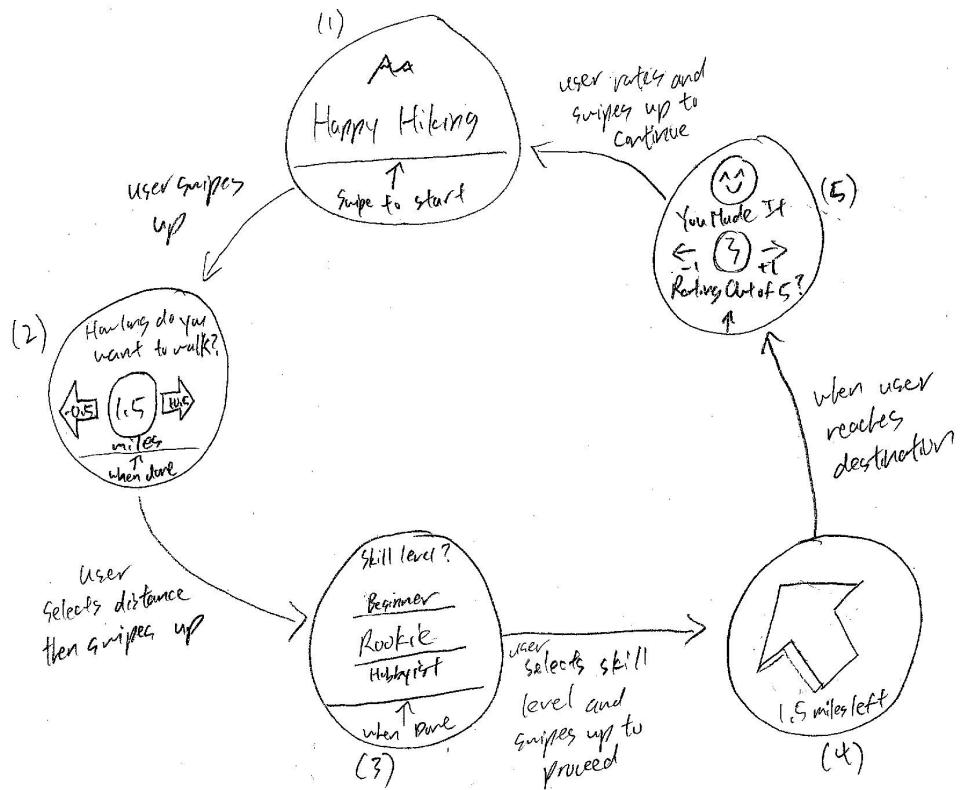
This sketch was designed with a focus on voice control (with the assumption that user's devices have some voice functionality). Screen 1 is the home screen that starts when the user activates it by requesting a route. The route is determined based on the user's present location. As seen in screen 2, the chosen path is a solid line while alternate routes are dotted. A landmark is also marked on the map so the user won't accidentally miss them. If the user is happy with their route and finished, they'll move to screen 4 and be able to quickly rate out of 5 stars their thoughts on the route. This will help improve the application's pathing for this area. If the user doesn't like their route, they can request an alternative route as seen in screen 3. Lastly, they can see what others have rated their current route to see the opinions of others like in screen 5.

Design 2:



This sketch is more traditional in that it requires the user to push on-screen buttons to interact with the tiny-screen application. In screen 1, they have a choice of buttons to get started. If they click the left button, the route is auto-picked for them based on their current location (screen 2). Or they click the right button and scroll through a list with a distance and rating displayed to be more specific with their choice (screen 3). When they finish their route, they get another pair of buttons to choose (screen 4). They can click the rate button and speak their thoughts as well as give a rating out of 5 stars (similar to one seen in the previous sketch) like in screen 5. Or they can skip the option of rating and go back to the home screen with the continue button.

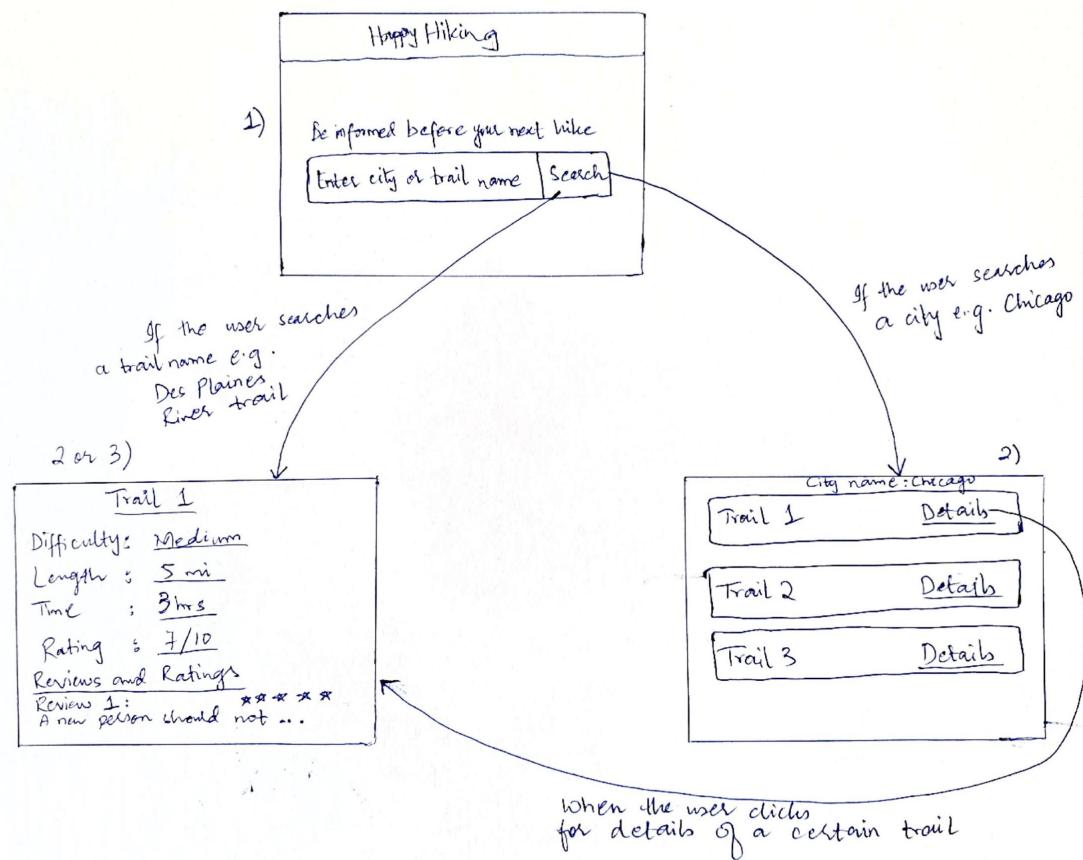
Design 3:



This design uses an alternative design I've seen on tiny screen/ smartwatch UI. A greater emphasis on swiping in specific directions to choose your path. First the user swipes up on the intro screen to get started (screen 1). Next, the user selects how far they'd like to go by either pushing or swiping in the direction associated with the values (screen 2). When they swipe up again, they pick their experience level to let the app know their familiarity with hiking to allow the app to better choose the best experience for that skill level (screen 3). When the path is chosen, the app uses a simple arrow to point in the direction they should be heading in reach their destination (screen 4). And when they're done they can give a numerical feedback out of 5 in a similar style to the distance input as seen in screen 5.

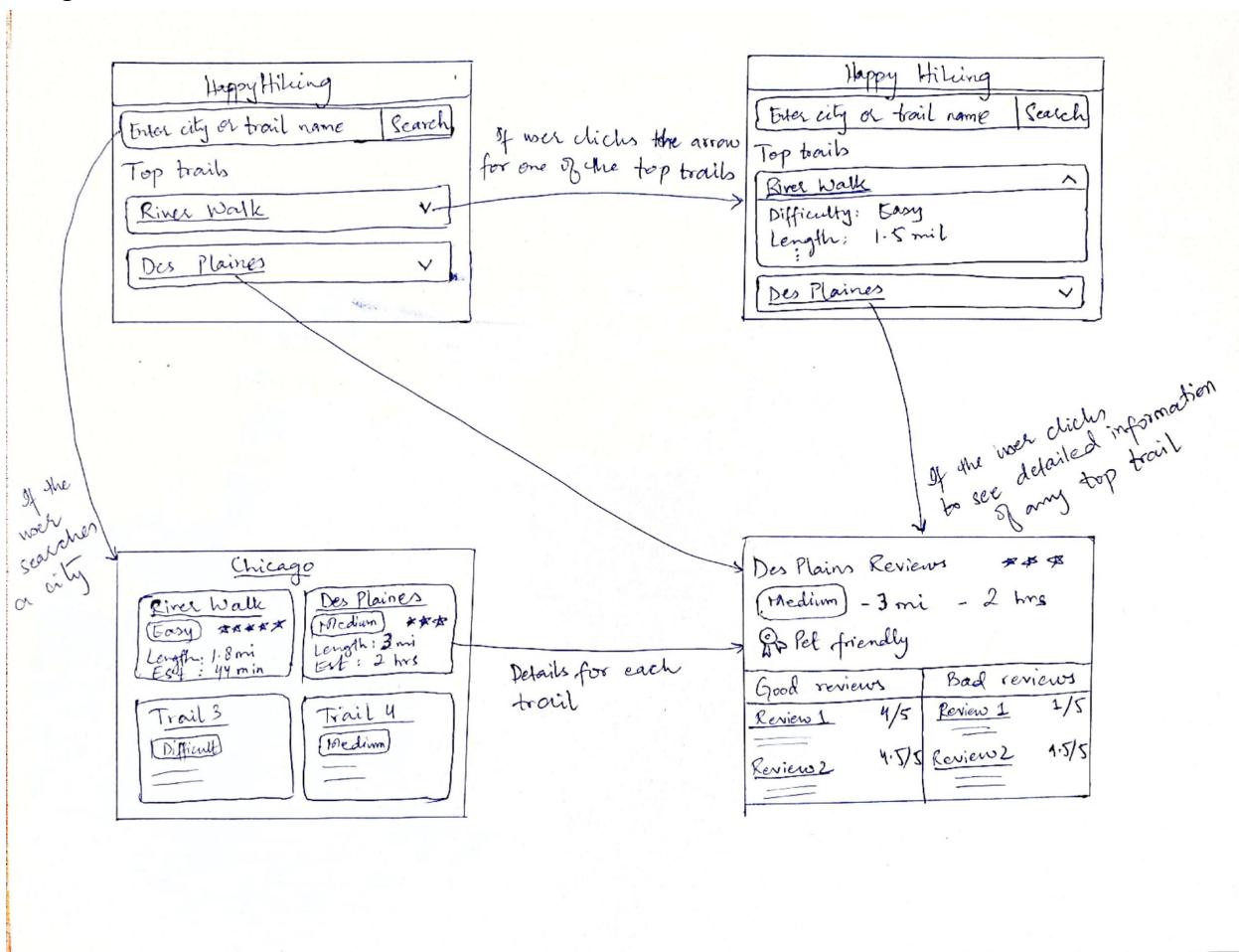
Aliza (ultra-safe extreme):

Design 1:



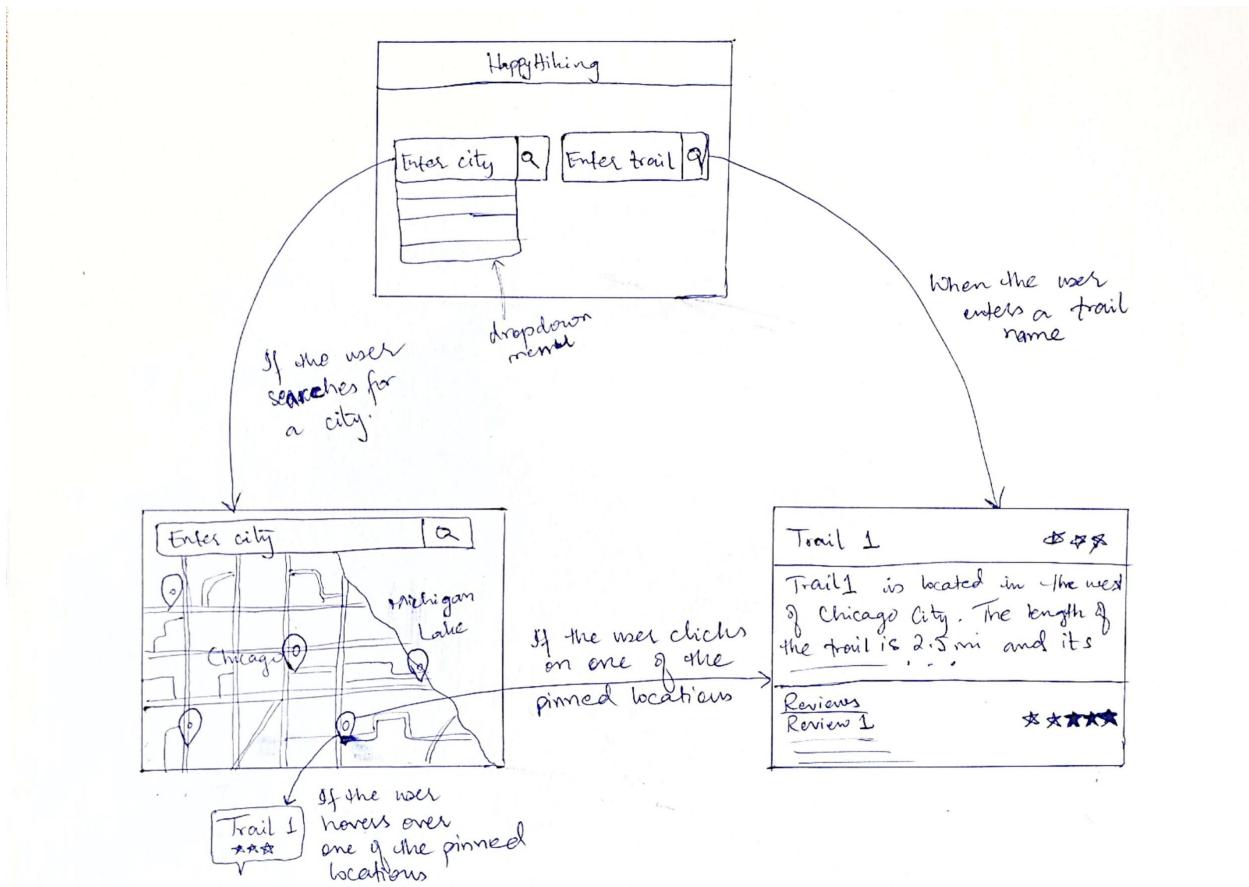
This sketch is a website design where the first screen (top) would have a search bar where a user can either enter the trail name directly or search for different trails in a city. If a trail name is entered in the search bar a screen with its details is displayed upon the search button click. Contrarily, different trail names are displayed in separate rows (bottom right) if the search is made for a city. The user can go to a specific trail's details screen (bottom left) by clicking on the "Details" hyperlink. Reviews are mentioned under the basic details on the details screen.

Design 2:



In this sketch, apart from searching for a trail or city, users can directly go to the details screen of either of the top trails displayed on the first screen (top left) or can see basic details by clicking the downward arrow. Upon searching a city, different trails are displayed in a tile view (bottom left) with some basic information. To see the detailed information and reviews (bottom right), the user can click on one of the tiles. Reviews are divided into good and bad reviews for this design.

Design 3:



In this design, separate search bars are placed for trail and city search on the first screen (top) respectively. Dropdown for each search bar is displayed once the user starts typing. If a city is searched then a screen with the whole map of the city (bottom left) is displayed where pinned location marks represent different trails. Upon hovering on any of the pinned points, rating in terms of stars is shown whereas upon clicking a detailed screen is displayed (bottom right). The details for this design are presented in the form of a paragraph.

Rahul (ultra-efficient extreme):

Design 1:

Design #1

User can select other pages of the website.



Selecting allows user to view & edit profile.

Selecting a trail allows the user to view additional info.

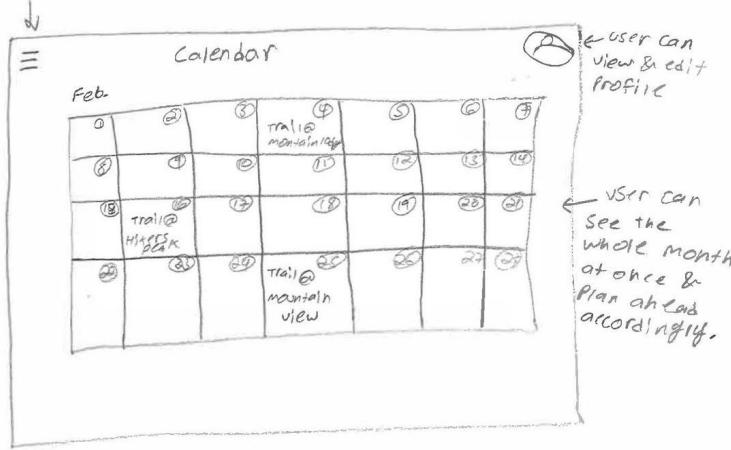
* Homepage of recommended trails for the user.

The user can quickly select a trail they are interested in and view additional details by selecting the item. The user also has efficient access to their profile on the top right & other pages of the website on the top left.



* User can view the selected trails & photos from other hikers. The reviews also inform the user about the selected hike.

User can access other pages of the website



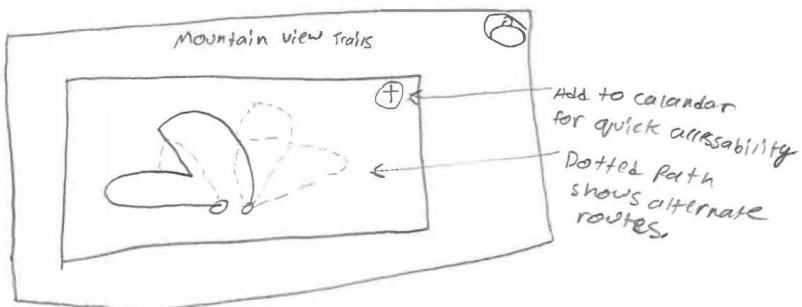
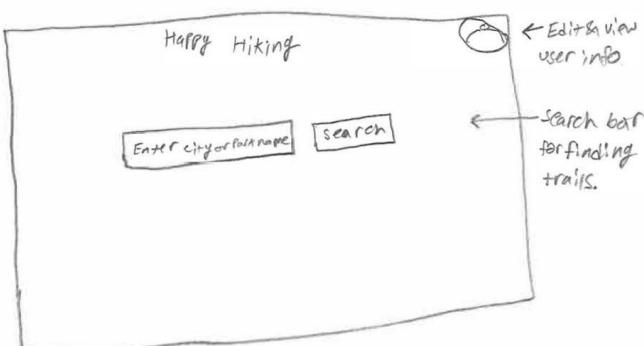
User can view & edit profile

User can see the whole month at once & plan ahead accordingly.

* User can select calendar to see the whole month at a glance & see where future hikes are planned. The user can also add/remove trails from this view.

Design 2:

Design #2



* The main page welcomes the user to type their location or an area they already have in mind. This allows the user to narrow their search for potential locations.

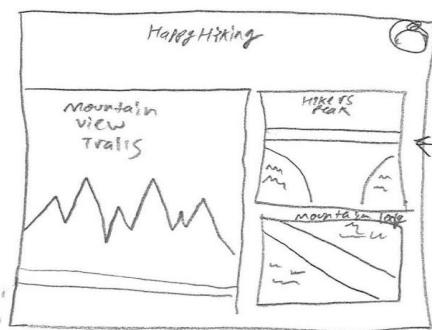
* The user can quickly see the path of the trail without worrying about anything else. There is also the availability to add the trail to the calendar if the user wishes to right away.



* User can easily view reviews that other hikers have posted to confirm & see if the trail is fit for them.

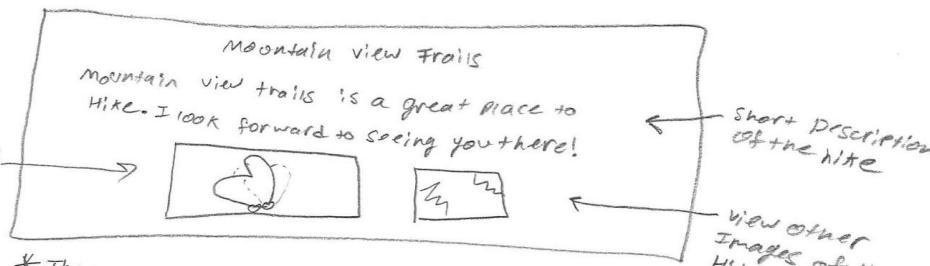
Design 3:

Design #3

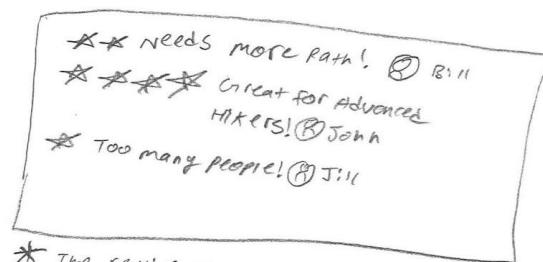


Images
are Selectable
to find out
more details

* USER can select a trail
that looks appealing
without worrying
too much about the
details right away.
This allows the user to
select a trail as soon as
they find one interesting.



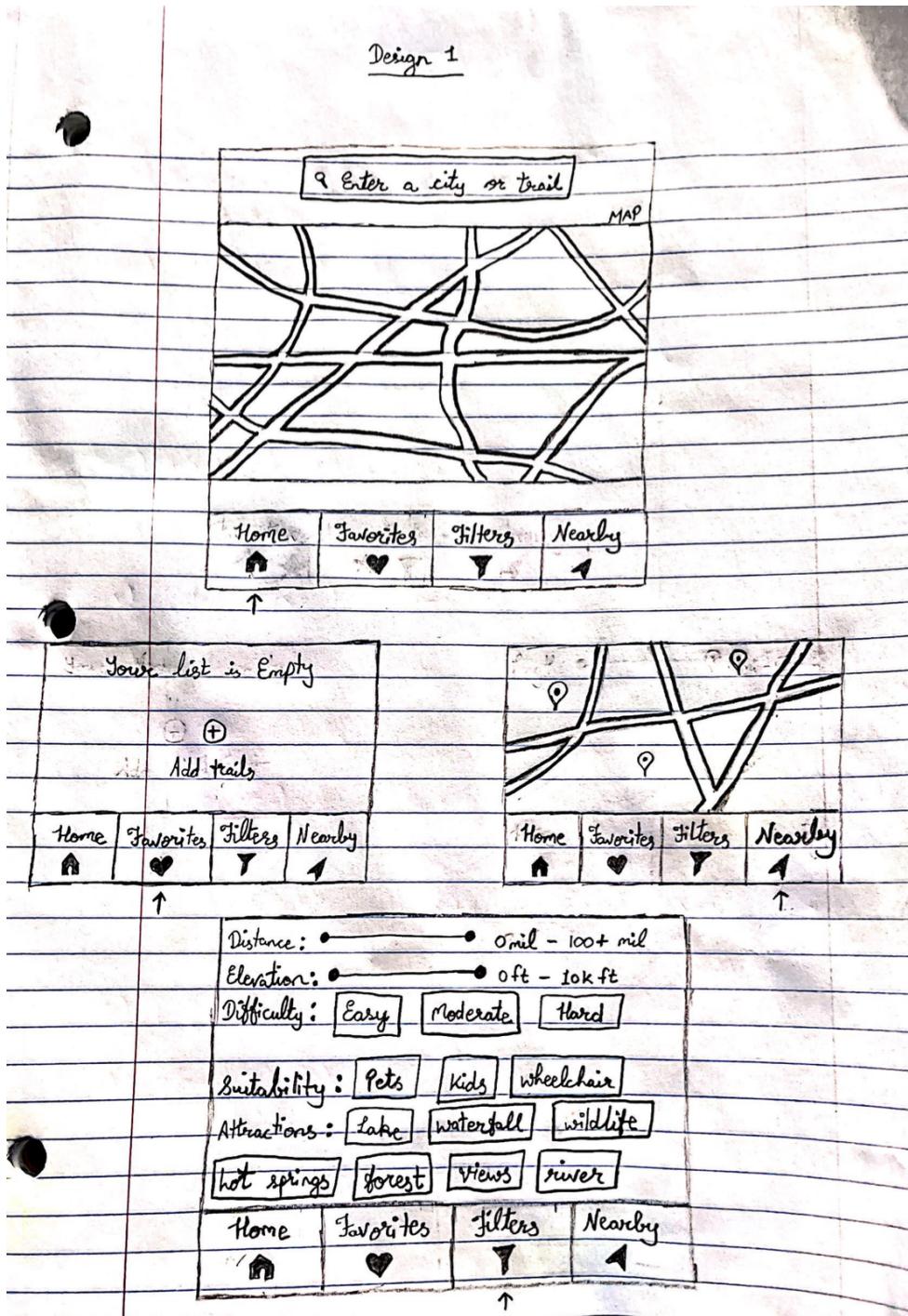
* The user can see a short description of the trail along with the Path & Photos that have been taken. This allows users to know if they are capable of hiking the trail.



* The reviews allow beginners to know from more advanced hikers the difficulty. They can also click on other users profiles to view them.

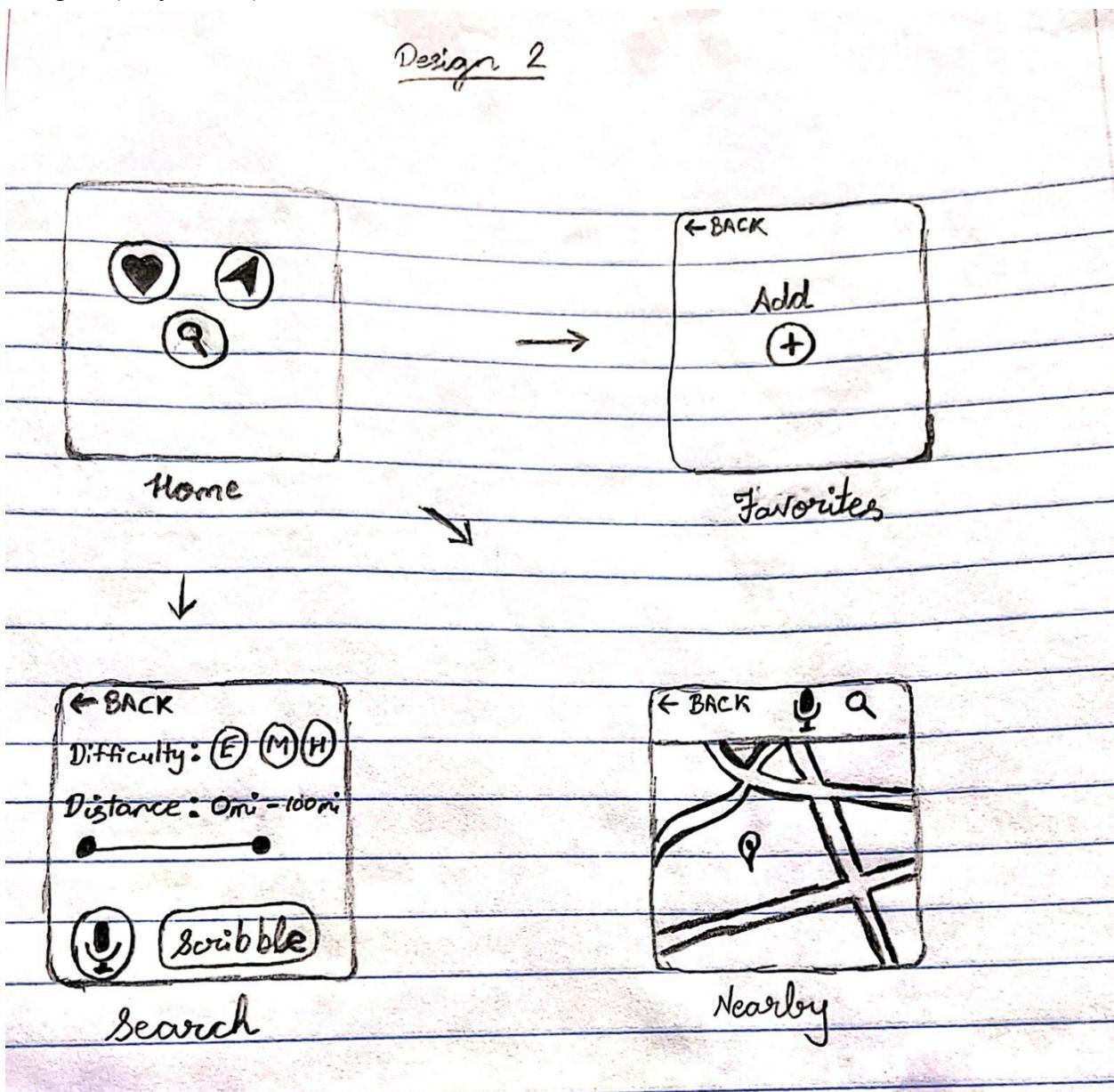
Het Patel:

Design 1 (For use while driving):



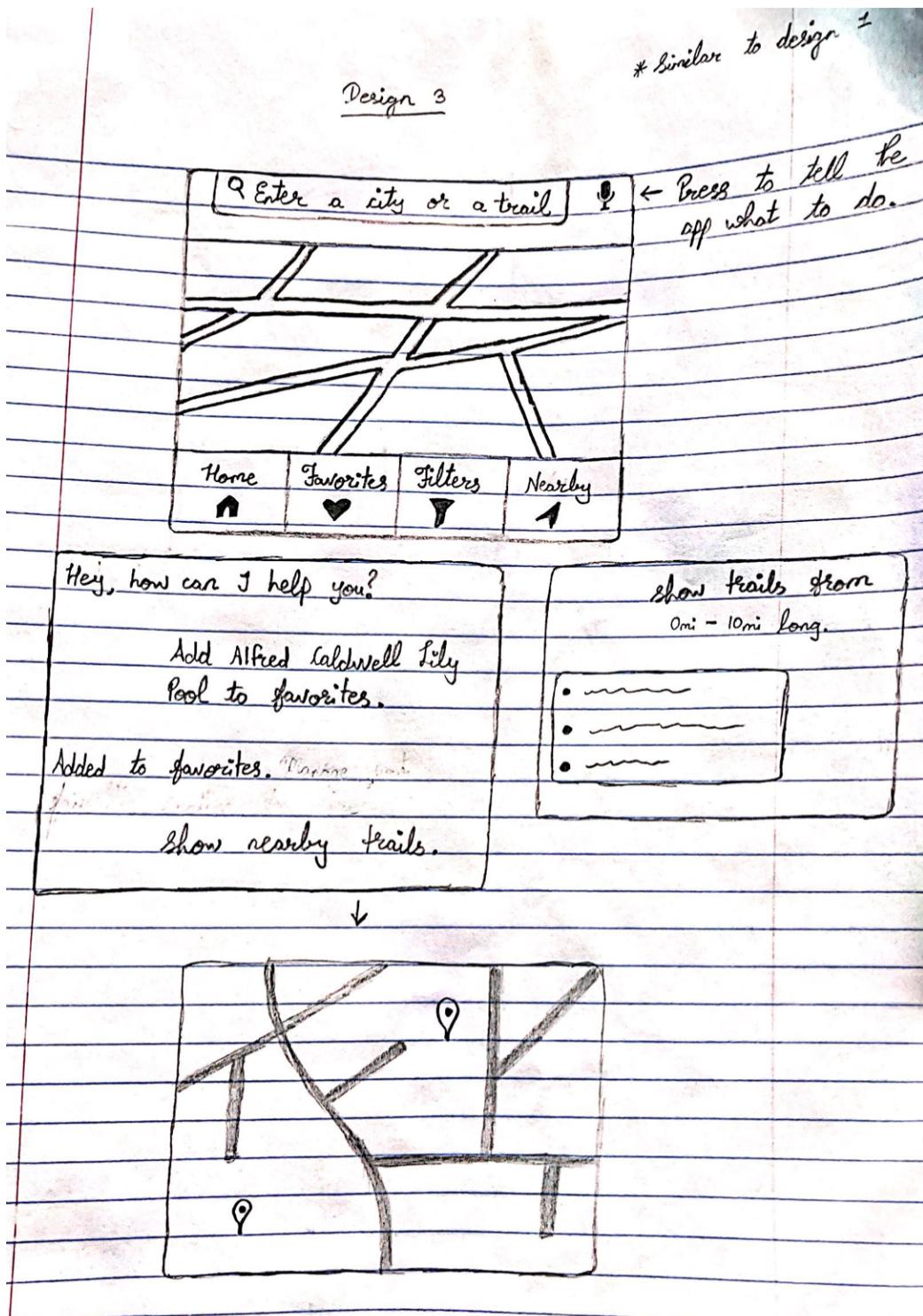
This design is intended for use while driving. It is easy to use and has map implemented into the design for directions. Trails can be easily accessed from the favorites tab and trails can be easily looked up from the filters tab. This design also allows for a user to view nearby trails as well.

Design 2 (Tiny screen):



This design is intended for smart watches with simple buttons, less text, and more compacted information. For a quick lookup, users can use their smart watches to access their favorites, lookup nearby trails or easily search a trail by using the microphone or scribbling the city or a trail.

Design 3 (For use while driving):



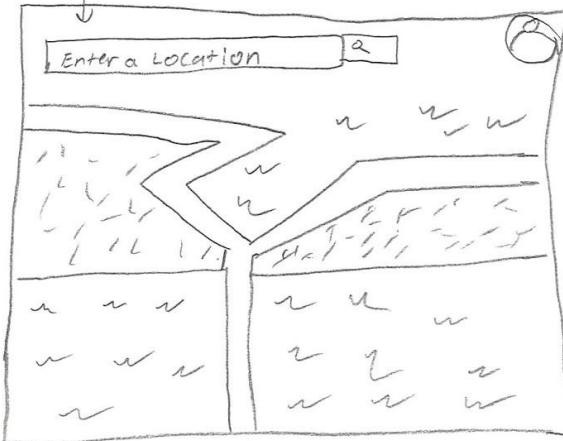
This design is similar to the first design but it is intended for users who do not want to take their eyes off the road even for a quick second. It has a siri like feature for users to give commands and simply access/lookup the information that way.

Group Designs:

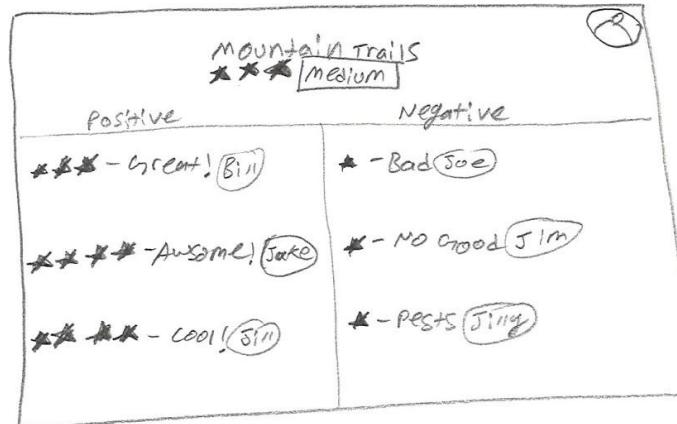
Design 1:

Group Design #1

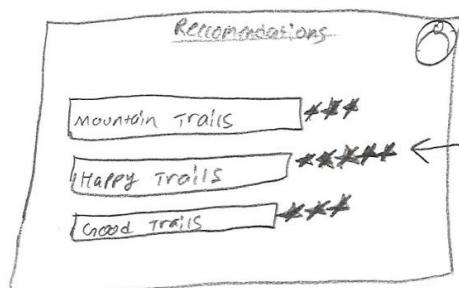
USER Enters a location to view



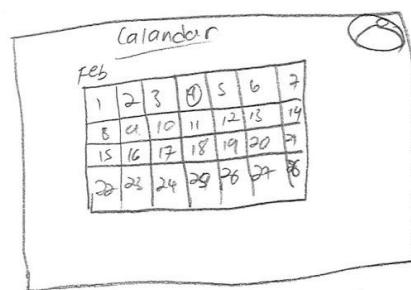
* The user can enter a location they have in mind or view nearby location on the map provided. The map is displayed as a large portion of the screen to allow the user to see the whole path at a single glance.



* The user can see right away if the trail is possible for them by looking at the difficulty. The user can also see the average rating of the trail at the top before they read through the positive or negative reviews about the trail.

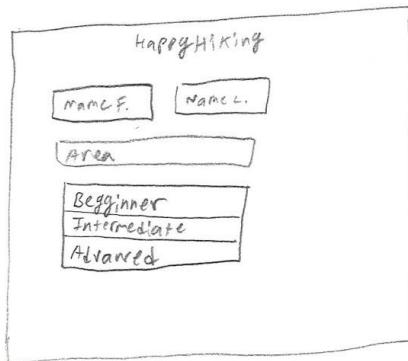


* The user can select from recommended trails by looking at the average review scores. Selecting on a trail displays more details. This allows the user to more efficiently select a trail if the user is a beginner.

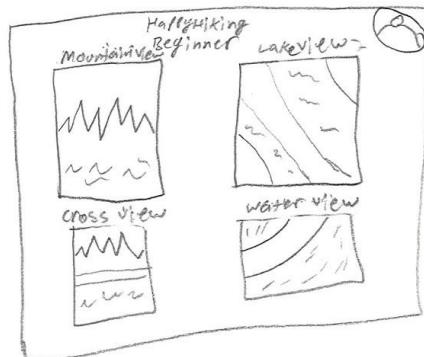


* The user can select a day on the calendar the wish to mark for their hiking event. This allows the user to easily see their month at a glance.

Storyboard



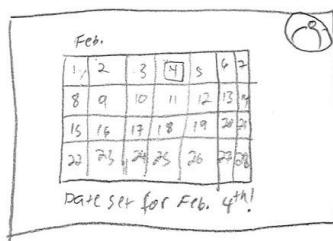
Joseph & his friends want to go on a hike. He has not been hiking before, so he creates an account on HappyHiking to get started.



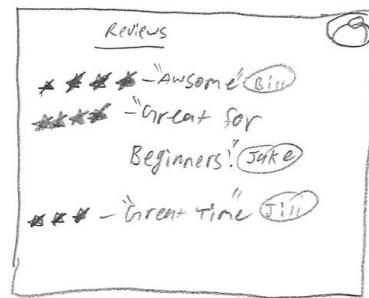
Joseph is then presented with 4 recommendations based on the information he placed on his account. Since he is a beginner he will be given the option of choosing from 4 beginner friendly locations in his area.



Joseph selects mountain view trail & is brought to a page to view more info on it. This allows Joseph to also take a look at the trail to make sure it is suitable.



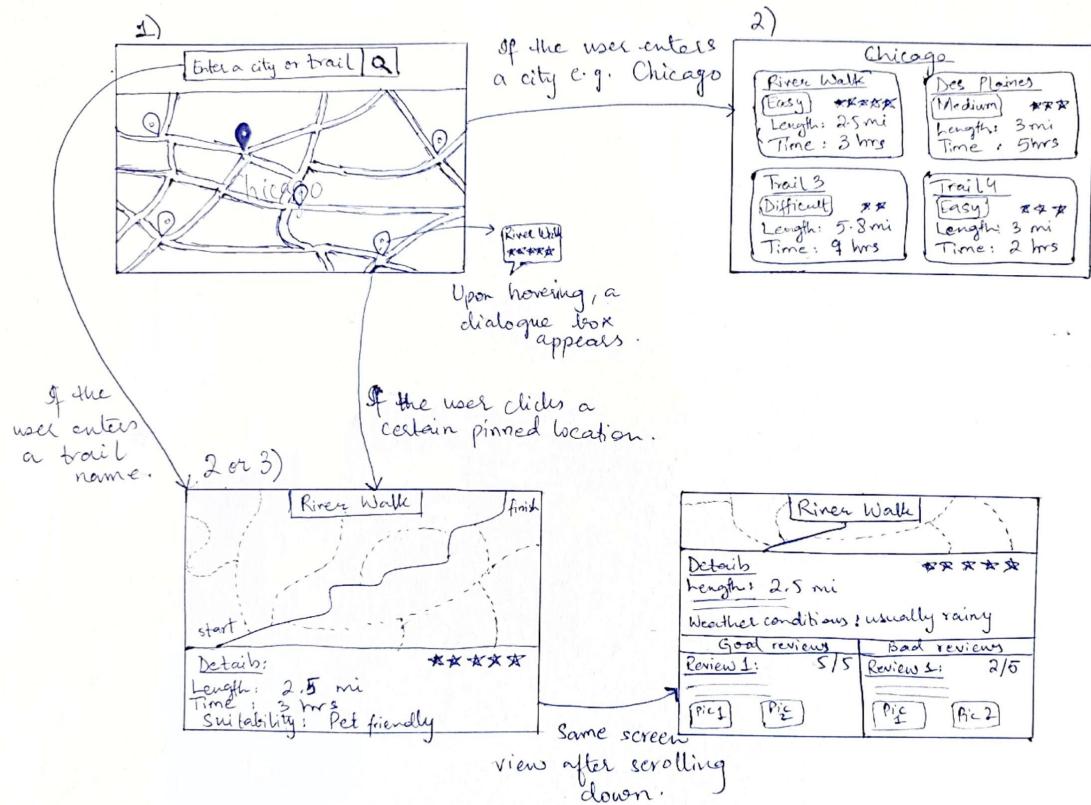
Joseph likes the selected trail & chooses to add it to his calendar to make sure he doesn't miss it!



Joseph can see what other hikers have to say about the selected trail to make sure it will be enjoyable for Joseph & his friends.

- Learnability
 - The interface is very easy to learn since there is a minimalistic interface. The user mainly interacts with the page by viewing images and reading some user generated content. This interface is very easy for the user to learn by doing.
 - The interface might take some time to learn since there are lots of navigational routes, but once the interface is learned it is easy to recall.
- Efficiency
 - The interface is very efficient because as a result of having a minimalistic interface, the user can achieve their task in a very short time. Once the user creates an account, the user can complete their task and view content in a very short interval.
 - The interface might take some time to navigate since to create a user account as well as check their calendar since they must select a trail and select all the way to the end of the process to view their calendar.
- Safety
 - There is very minimal user input to make sure the user does not make a mistake or select an incorrect option resulting in minimized user error.
 - Since the user must select all the way to the end of the process to view the calendar there might be an issue where you selected the incorrect trail, resulting in the user to backtrack and select a new trail from the beginning of the process.

Design 2:



This design features the homescreen (top left) of the website where the user can see a search bar and a map underneath showing the user's own location (the dark one) and pinned locations for nearby trails. If the user hovers over either of these, a pop-up showing the name and rating (stars) of the trail. If the user clicks on one of these pinned locations, the details of the trail (bottom left) are displayed. This screen shows the path of the trail from the starting point to the finish, the length, estimated time, suitability etc.. Upon scrolling down (bottom right) this screen the user can read good and bad reviews divided into two columns at the end of the screen.

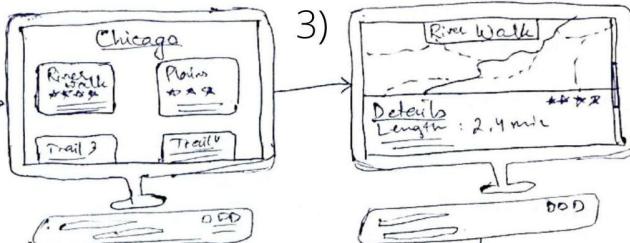
Storyboard:

Hammad (novice hiker), opens the website



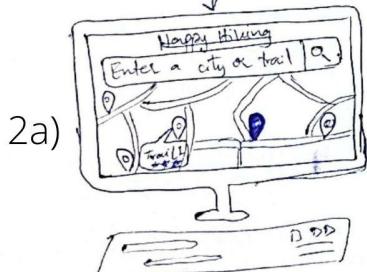
1)

Hammad selects river walk from the tiles and sees the screen with details



2b)

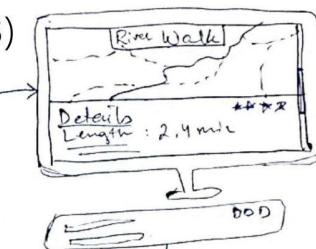
Hammad searches the city Chicago and sees different trails in tiles view.



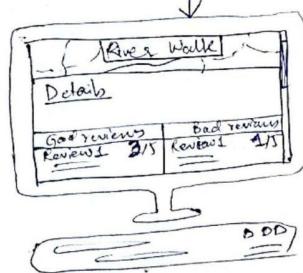
2a)

Hammad hovers over a location that shows a popup with its name and rating.

3)



4)



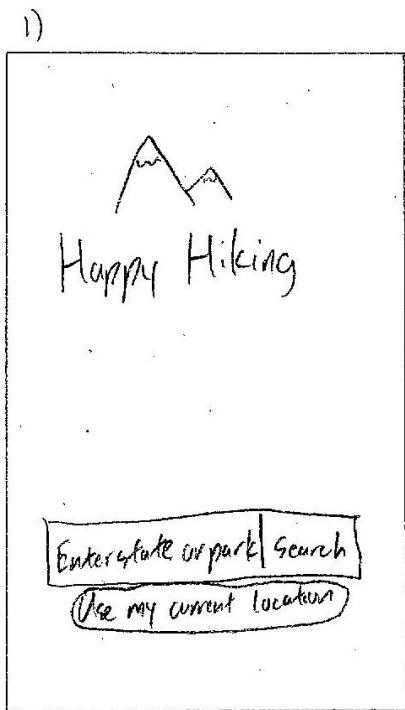
Hammad scrolls down on the same screen to view more details and reviews.

- Learnability:
 - The design is quite simple and displays the search bar at the top which is the prime reason for using the website. The details screen is just displaying information and does not require any learning. Overall, this design has good learnability and requires less effort on the user's part regarding this.
 - The pinned locations might take a few tries for the user to learn about their hover and clickable functionality.
- Efficiency:
 - The website is very user friendly for novice hikers as it provides all their required details in one place and screen. They can choose their nearest trails from the first screen's map even without making a search.
 - Finding their desired trail from the tile view (Screenshot 2b) might be a bit challenging and checking each trail's details and coming back to this screen again,

won't be very efficient. This will require more time and effort hence, making it a bit inefficient.

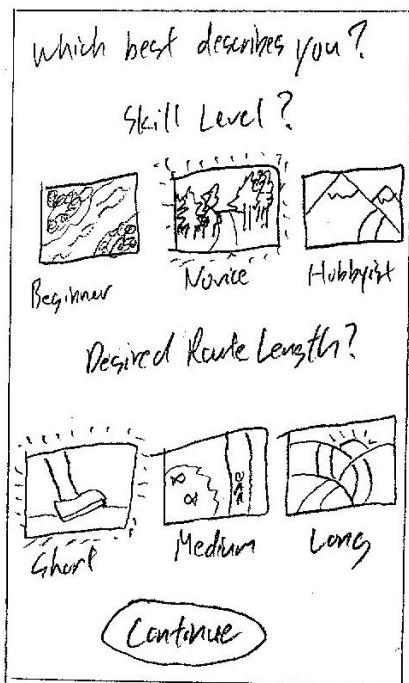
- Safety:
 - There is no safety concern in this design as all the actions are reversible with just a back button click. No action is crucial or irreversible. All the information is provided in an organised manner so that the user does not make any mistakes.
 - However, there is a chance of misreading with all the detail on one screen. This increases the chances of getting data mixed up in one's mind or eyes.

Design 3 and Storyboard:



Hammad installs the application and starts it. He's greeted by the app name and the ability to start by either entering the state/park he is interested in investigating routes for or using his current location (for instances of when he is already at his chosen park). He types in his park that he wishes to explore with friends and the application moves to the next screen.

2)



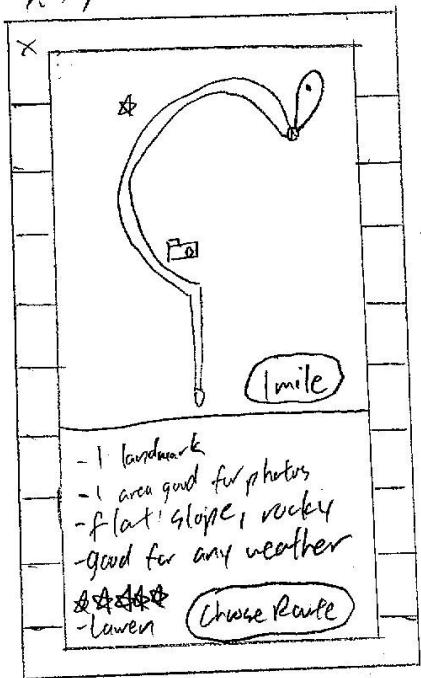
Here, Hammad is able to choose from different options including the difficulty of traversing the route and how long the route should be (relative to other routes in this park). Because he only hikes once in a while (but he has had past experiences with hiking), he chooses the novice skill level. This time, Hammad and his friends choose to take a shorter path for this trip. He enters in the choices and clicks continue.

3)

Recommended Paths		
	★★★★★	- Lauren
	★★★★★	- Duke
	★★★★★	- Lydia
	★★★★★	- Blake
	★★★★★	- Drake
	★★★★★	- Daniel
	★★★★★	- Bob

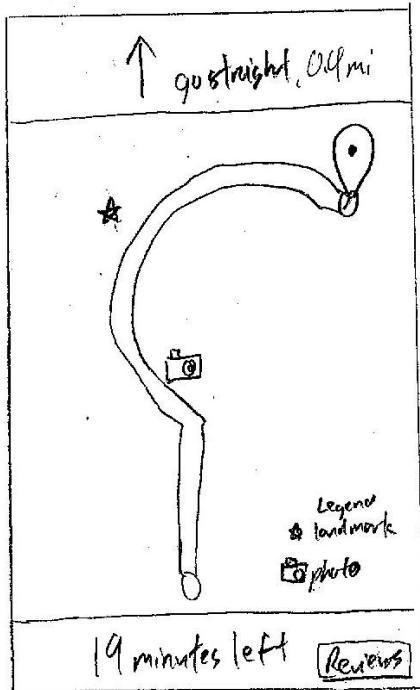
The application now displays varying potential paths for Hammad and his friend group to choose from. A tiny preview of the route as well as a rating by a user who previously used this app are shown. Hammad decides based on the ratings provided by these users as well as the final location of that path. He selects the topmost cell (Lauren's recommended path).

3.5)



A modal appears over the list displaying the route a bit better. Hammad has the option to select the close button and choose another path. Details Hammad was looking for appears now. Data such as notable landmarks and places to take photos. He reads that the terrain is pretty flat so he and his friends don't have to handle slopes for this trip. And lastly, he reads that this trip is suitable for just about any weather condition this area gets. He is satisfied with the details and selects the "Choose Route" button.

4)



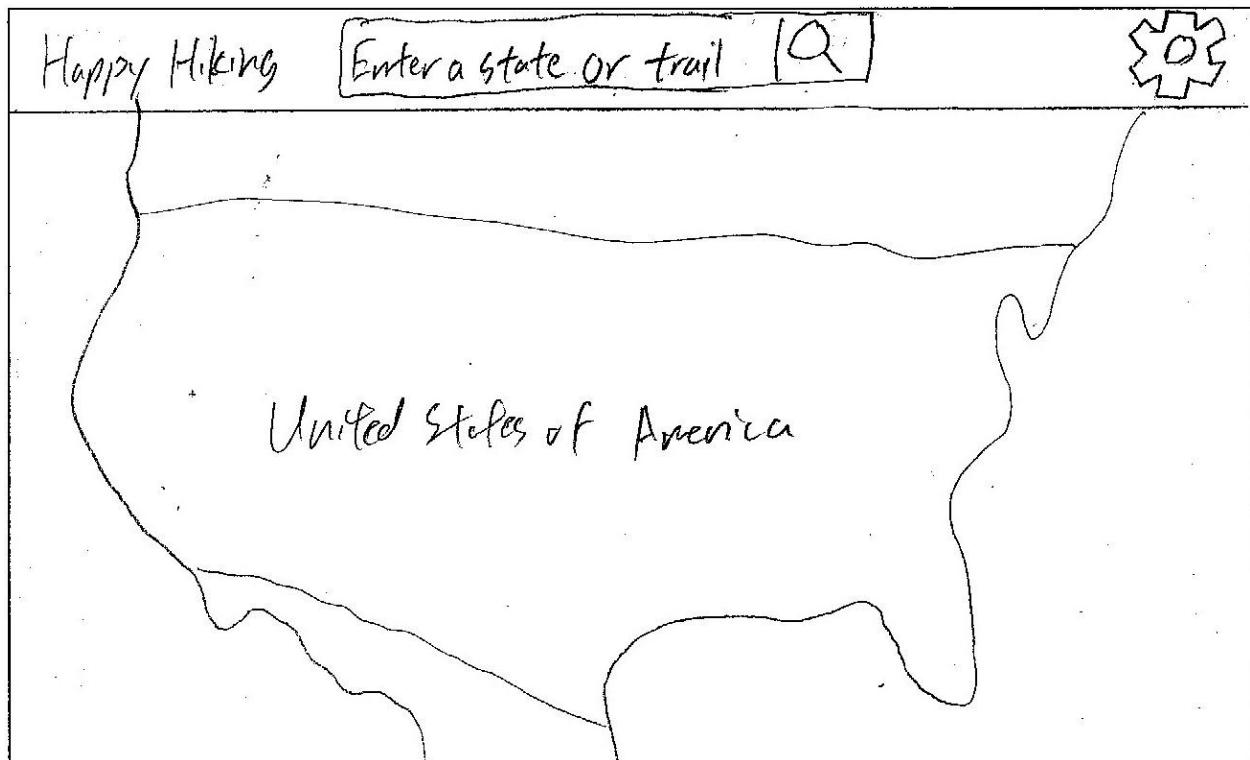
The application now displays a full map for Hammad to refer to during the trip. Symbols for landmarks and good photo areas are displayed if his group chooses to take a stop at those locations. The time it will take to traverse the path is displayed at the bottom of the text and the current direction to take is located at the top. At any time, Hammad can go and see the details of this trip (displayed like in screen 3.5) in case he wanted to double check any details. Now he and his peers can enjoy the trip and have peace of mind knowing all the information they may need is accessible from one source.

- Learnability:
 - This design has good learnability. There is no need for the user to memorize any features they learned as prompts will guide them through every time. This storyboard does not have any unorthodox choices for UI/UX so users who've used other applications will have some familiarity with how to navigate our design. Pieces of data such as the path options screen (screen 2) all have labels to denote what they are. For the map part of our design (screen 4), a legends section tells the user what the varying symbols mean so they don't have to memorize it.
 - One aspect of this design that could use work is it makes the assumption that the user comes with a familiarity of how to traverse the app by way of assuming they have used and have grown accustomed to other app UI/UX. If a tutorial page were to be added however, it would do away with this assumption.

- Efficiency:
 - This design demonstrates efficiency by simplifying the path selection process. From the list of all possible paths, it is simplified based on chosen skill level as well as path length. Aspects such as path length, rather than just a number that the user types in, will instead be decided by the application based on the relative lengths of different paths. This also makes more sense as the user won't always know how far a number like "1.7 miles" is or the distance between the current location and the next stop. Another time this app demonstrates efficiency is by consolidating the same route reviews all into one cell of data (with regards to screen 3), rather than showing the same route again and again for every review. Individual reviews can be read when the individual map cell is selected as seen in screen 3.5/4. This allows the user to select unique, different paths quickly and conveniently.
 - One downside about this efficiency is that reviews for popular routes may be buried under the first, most detailed ones and users may need to make an extra effort to dig out a specific review that may contain a specific piece of data they are looking for.
- Safety:
 - Plentiful, organized information is how this design demonstrates safety. Previews of routes as well as the availability of reviews from past users is how the current user can read about whether they are skilled and prepared enough for that specific route.
 - It is however possible for a new user to ignore reading this information and select a skill level and path length they in reality aren't able to do. To combat this, though not shown in the design as our scenario user selected a short route, a message would pop up to ask the new user if they are sure they wish to start out with a long route and would recommend reading some reviews before continuing. The user would have the choice to proceed with their chosen path or go back and listen to the message.

GR3 Paper Prototyping

Prototype Images:



Happy Hiking

Settings 



First Name
Last Name
change

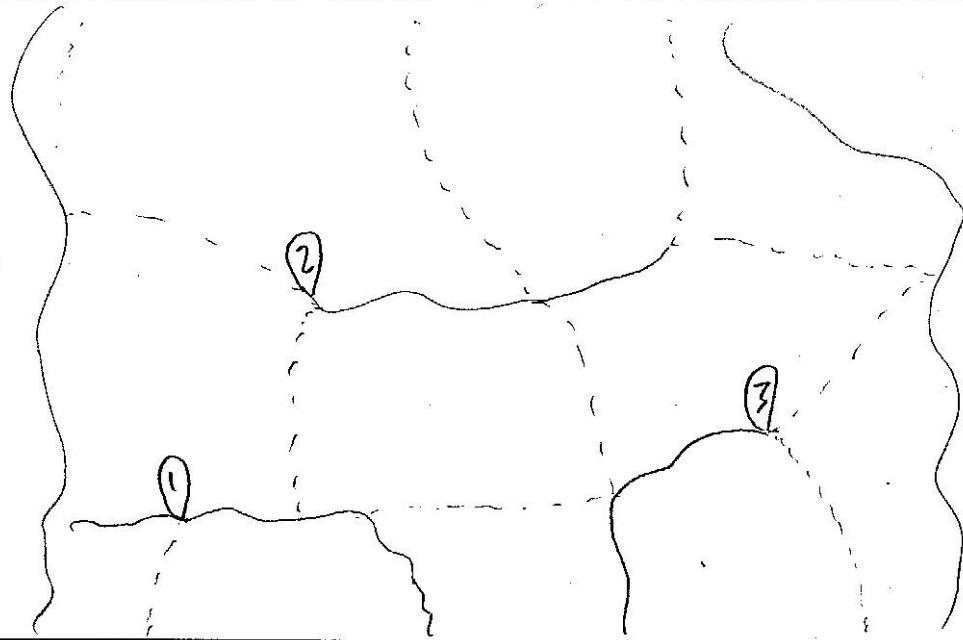
The Username change
Default: IL change

Change Password
Terms & Conditions
FAQ

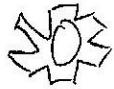
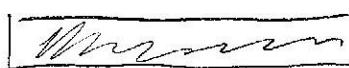
Happy Hiking

Classmate

[a]

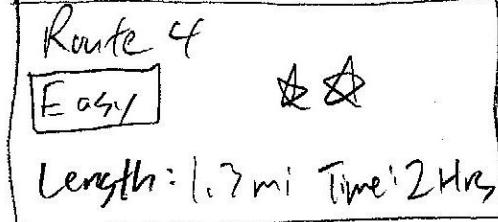
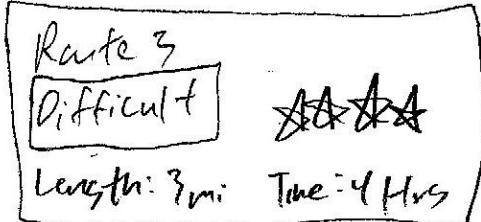
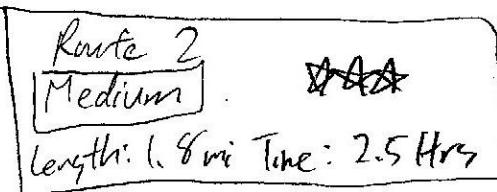
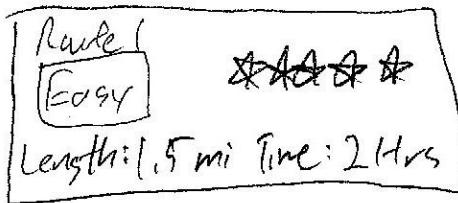


Happy Hiking



X

①



Happy Hiking

Thesaurus

10

SPT

X

(2)

Route 1
Easy

Length: 0.9 mi Time: 1 Hr



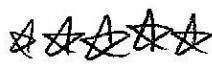
Route 2
Easy

length: 1.1 mi Time: 1 Hr



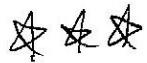
Route 3
Medium

Length: 1.7 mi Time: 2 Hrs



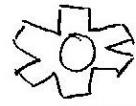
Route 4
Easy

Length: 1.2 mi Time: 1 Hr



Happy Hiking

Recent



X

③

Route 1

Difficult



Length: 1.5 mi Time: 2 Hrs

Route 2

Easy



Length: 1.8 mi Time: 2.5 Hrs

Route 3

Easy



Length: 3 mi Time: 3 Hrs

Route 4

Difficult

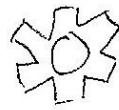


Length: 1.7 mi Time: 2 Hrs

Happy Hiking

Mt. Hood

IQ



Route X



Length: X miles

Time: X Hrs

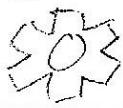
Start this Route

Read Reviews

Happy Hiking

~~Wanderlust~~

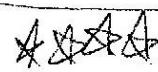
[10]



Hart

finish

Length: X miles



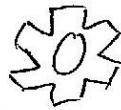
Time : X hours

Suitability: Pet friendly

[Read Reviews](#)

Happy Hiking

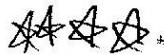
Reviews | Q



Reviews

Write a Review

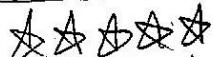
Good Reviews



- Great Scenery
- Pet enjoys it

Read More

- Josh P.



- The best trail
- Favorite spot

Read More

- Patrick S.

Bad Reviews



- Don't like terrain
- Tripped one time

Read More

- Drake D.



- Got lost

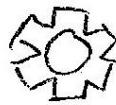
Read More

- Velma T.

Happy Hiking

Adventure

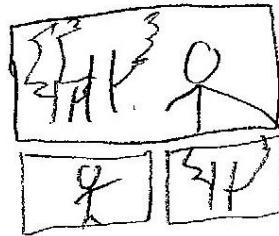
1a



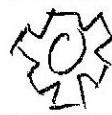
Josh's Full Review

★★★★★

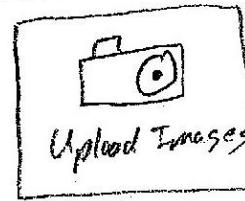
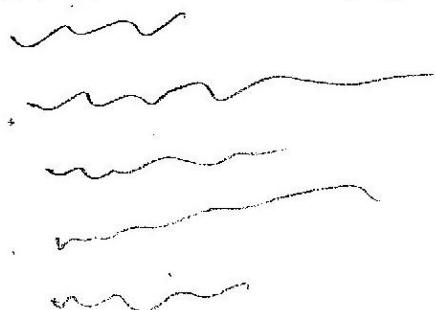
- Great scenario
- Pet enjoys it
- Great w/ friends
- Good for any weather



Happy Hiking 10



Rating:



Cancel

Submit

Briefing:

The name of our web application is “HappyHiking”. The purpose of this application is to provide ease of access towards basic information of hiking trails to novice hikers. Apart from amateurs, the application also allows hiking hobbyists or experts to post their experiences and reviews regarding different trails they have been to.

Using the application is quite simple as the user can search for hiking trails or options for different trails within a city or near his or her location. The users are able to make their profile on the website. They can save their progress or favourites under their profile or could submit reviews.

There is no prior knowledge required to use this application. Even if the user does not know the names of any trails, he or she can simply search for the ones within their city or look up the details regarding the trails near you.

Lastly, thank you for being a part of this user testing. Please note that it's a test for the interface and not you. Your responses and feedback will help us make improvements in this application's interface.

Scenario Tasks:

#	Task
1	Start on a trail with medium difficulty and at least a 4 out of 5 star rating as your route.
2	View a full review of a trail.
3	Add a review for a trail.

Observations:

During testing of our paper prototype, our users ran into a few learnability errors. Our user did not know where to click to begin completing the task and how to return to the previous page. The two major design flaws we came across were lack of backwards navigation and clarity in navigation on the homepage.

One of the tasks we wanted our users to complete was to select a trail with medium difficulty and with a 4-5 star rating. In order to do this the user needed to type in a city or trail, however this was not clear and as a result two of our users were initially not sure how to navigate and proceed with the task. In order to fix this we moved the search bar to the center of the screen so it was more apparent that the user is meant to navigate using the search feature.

Once users were able to navigate the homepage and navigate the site, they needed to return to a previous screen, however there were no backwards navigation buttons present for the user to clearly understand that going to a previous page was a valid option. To fix this we added buttons at the top of the screen to signify the ability to navigate to a previous page. This made it

clear that returning to a previous screen was possible. Overall, the issues the users were facing were related to conveying how the user can navigate the page to complete the task in an effective and efficient manner.

Prototype Iterations:

Iteration 1 (tested with 3 users):

For the first iteration, we started with a map of the United States of America. We also had a search bar above the map for users to search for a city or a specific trail. Once users were able to navigate the site, we observed that the users had a difficult time going back to the previous page. We observed that they tended to click specific parts of UI cards when the whole card was clickable. Another trend we noticed was that users tended to go to the settings button rather than the search bar when beginning their first tasks.

Iteration 2 (tested with 3 users):

For the second iteration (testing with a group of 3 users different from the ones who tested for iteration 1), we decided to make the changes that were required for the users to complete the tasks more fluently and try to eliminate certain undesired shared behavior. On average, users completed their tasks more quickly and communicated that they knew where they could potentially go next. Less users spent time in the settings menu due to UI changes we made such as decreasing its size and making the navigation centered and larger. After modifying the UI design of some of the path route cards, users were more willing to click any part of the card (and all of it was clickable) rather than just specific parts of them (particularly the difficulty text and the star ratings which previously had a square box surrounding them which appeared to give the impression of a button). It appears the changes we implemented to the prototype successfully helped the users do what we intended the features to do.

Changes made between iterations:

- Added a button for the users to go back to the previous page. The user has an option to go back to the previous page from wherever they are.
- Moved and enlarged the search bar to the center of the screen for users to easily navigate the bar and search a city or trail.
- When users enter the page, they are brought to a zoomed in view of their set default location rather than just the general zoom over the United States (U.S. zoom will only be if they don't set a default location and don't share their current location).
- Decreased size of settings icon (users tended to click on this page as they began their tasks even though no tasks are completed through the settings page).
- Shifted buttons that change user settings to bottom of settings page rather than intermix with display texts. (cleaner layout so users spend less time looking around settings page)

- Added a scrollbar to show users if there are more available routes for a path on pick-your-route page (one user thought there will always be 4 routes available).
- Made star ratings for paths smaller and moved in the corner of their route cards (some users wanted to click specifically the star even though the entire card they were displayed on was clickable).
- Removed square UI surrounding the difficulty levels of path cards (some users wanted to click specifically the difficulty text even though the entire card they were displayed on was clickable).
- Added a Stop Route button so the website knows whether or not to keep giving directions if the user looks up other directions.

PR1

Youtube Link: <https://youtu.be/SNLcxjByJFU>

GR4

Platform Details:

Any modern operating system and browser will be sufficient. Computer use with an internet connection is required (preferably with a large screen).

Instructions:

Link: <https://emeraldpine.github.io/CS422-GR4/>

Search and navigate the website to explore new hiking trails and find out if they match your needs and experience level! Read reviews and ratings from those who've previously taken these routes and leave your own feedback to help other users learn about the area!

Shallow Parts:

Following are the parts of the implementation which are shallow or canned:

- Clicking on the settings icon on the home screen takes the user to a static user profile instead of giving options to make a profile, check favourite trails etc.
- Clicking on the search bar on the home screen, doesn't let the user make a search. Instead take to a page showing how a search result would look like.
- The user is not able to edit or change anything in the profile or settings.
- The search result once the location has been entered shows three nearby destination marks. Upon clicking any of those a static page with reviews appears. The same page appears for all the destination marks.

- The upload images button on the review submission page is just an image, it doesn't actually work.
- The submit review button does not make any backend submission.
- The “Read more” button for each review takes the user to the same page which is a review by Josh.
- All the maps are static images and do not provide any kind of navigation.

GR5

URL to the working project: <https://emeraldpine.github.io/CS422-GR5/>

Our project is a website hosted on github pages which would work with any modern OS and browser. Computer use with an internet connection is required (preferably with a large screen).

Each member's contribution:

As a group we divided the pages for our website and worked on those including the html, styling and javascript part of each. The header template was created by Ryan which was added as a header in each page of the website. Following is the individual contribution by each of us:

Aliza:

I worked on the “write review” page, “submission feedback” page and the four pages which showed different details for different reviews once the ‘continue reading’ link is clicked for any of the reviews from the allReviews page. These pages are named as “readMore” pages.

Ryan:

As mentioned above, I worked on the header that displays at the top of each page and contains the project logo, search bar for new location, and profile feature. I created the home/landing page, what the user sees first when they enter the website. I also worked on the page that displays after the user enters in a location and gets the results of potential routes in the area.

Rahul:

I worked on the “Location” pages, and “Route” pages. The Location pages consist of four routes in a selectable card format. The difficulty of each route is displayed with orange being easy, purple being medium, and red being hard. The length and time of the trail is also displayed in the selectable card. Once a route is selected an average rating is displayed in the form of stars. Beneath the star rating the route name, length and time are displayed. At the bottom of the card are selectable cards to begin the route and read reviews. All these features are also available to view on the mobile version.

Het:

I worked on the “all reviews” page, “start route” pages, and “no more reviews” page. All reviews page shows the user posted reviews and the user also has an option to read more reviews which will take them to the no more reviews page. No more reviews page was not part of GR4 and it's something that we added. I made a start route page for every single route that the user is able to select. The changes we made from PS3 feedback are listed below.

PS3 feedback:

We made sure to keep all the good points from PS3 feedback in the final prototype of our project. For the bad points, we were able to remove most of the major ones. For instance, Anagha pointed out that the rating for each trail did not show the total number of stars/rating it is out of. This was a major flaw which we fixed.

Then:

Good Reviews		Bad Reviews	
	Read More		Read More
<ul style="list-style-type: none">• Great Scenary• Pet enjoys it 	Read More - Josh P.	<ul style="list-style-type: none">• Don't like terrain• Tripped one time 	Read More - Drake D.

Now:

Good Reviews		Bad Reviews	
	- Josh P. Continue Reading		- Drake D. Continue Reading
<ul style="list-style-type: none">• Great scenery• Pet enjoys it 	- Patrick S. Continue Reading	<ul style="list-style-type: none">• Don't like terrain• Tripped one time 	- Velma T. Continue Reading

A lot of cosmetic changes that were suggested were already temporary and got fixed as part of the process. Here is a list of the other changes we've made:

- Adding blank stars for review not maxed to 5 for possible-route-page.
- Changing gear icon to avatar icon for profile button.
- Change X icon to back icon for viewing a selection on potential routes to take.
- Add a Read more reviews button (which can take them to a page that says that no more reviews are available).
- Change the currently existing "Read More" button text into "Continue Reading".
- Swap positions of author's name and the now "Continue Reading" button.
- Change the "Continue Reading" hover color to a dark blue rather than pink as seen in GR4.
- Adding the difficulty level in colored font to specific route pages.
- Changed the hover color of the submit button on the submit page to dark blue consistent with other pages rather than bright cyan.

GR6 User Testing

Design:

For the final design of our interface, we introduce the user to the first page:

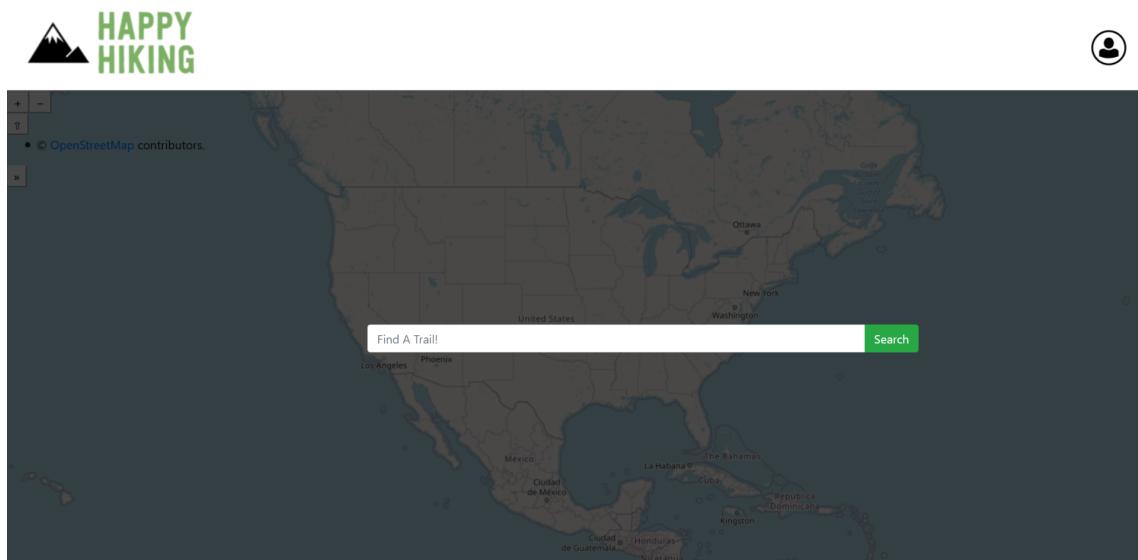


Figure 1: Home page of final design implementation

We decided to start off with the search bar (as seen in Figure 1) in the center because based on our user testing from our paper prototype, if the search bar is located in another location, users did not know what to do. By centering the search bar from the introduction of the interface we think it will improve the learnability of the interface. One

limitation we found was that the search bar was ambiguous as to what is allowed to search. This could have been improved by having the placeholder text giving an example of expected input. We decided to have the user account details on the top right of the screen since most users will know how to interact with it based on previous interactions with other user interfaces. One decision we made with the user account button was to make it small (smaller than it originally was) to show to users that it is not of major importance to the process of getting a hiking route (Figure 1). These changes we think will make it easier for the user to learn the interface by learning by doing. Once the user selects a location, a selection screen appears:

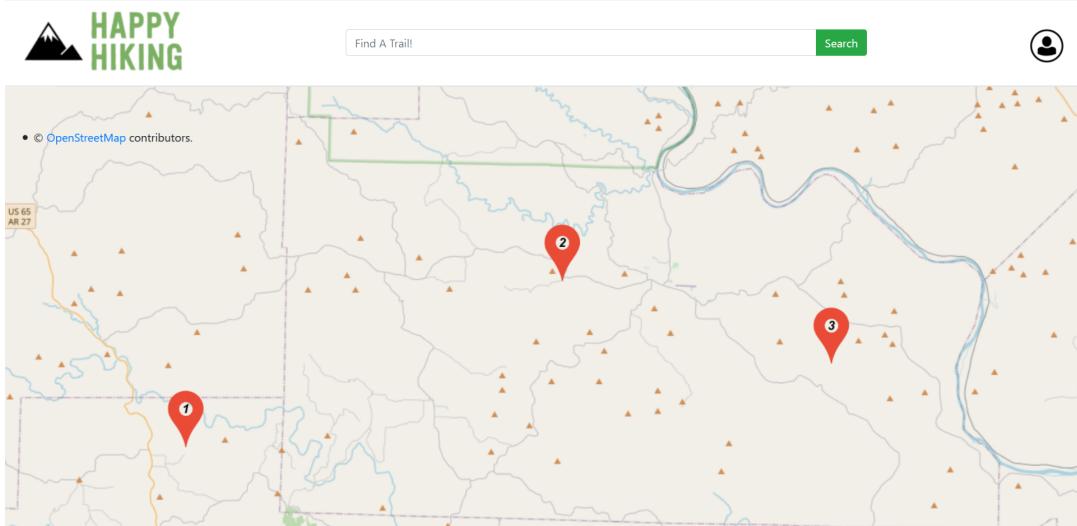


Figure 2: After entering a location, the user can see locations with potential hiking routes.

The red markers on the map are reminiscent of what applications like google maps (Figure 2), and apple maps have provided along with good information scent to users based on experiences with other applications. We decided to add numbers to the map markers (Figure 2) to increase efficiency by helping users keep track of which locations they've already looked at if they're browsing around different areas. This comes even more in handy when the user views a location that contains many potential locations within a small area, all with their own hiking routes. Once a location is selected we are presented with the possible routes page (Figure 3):

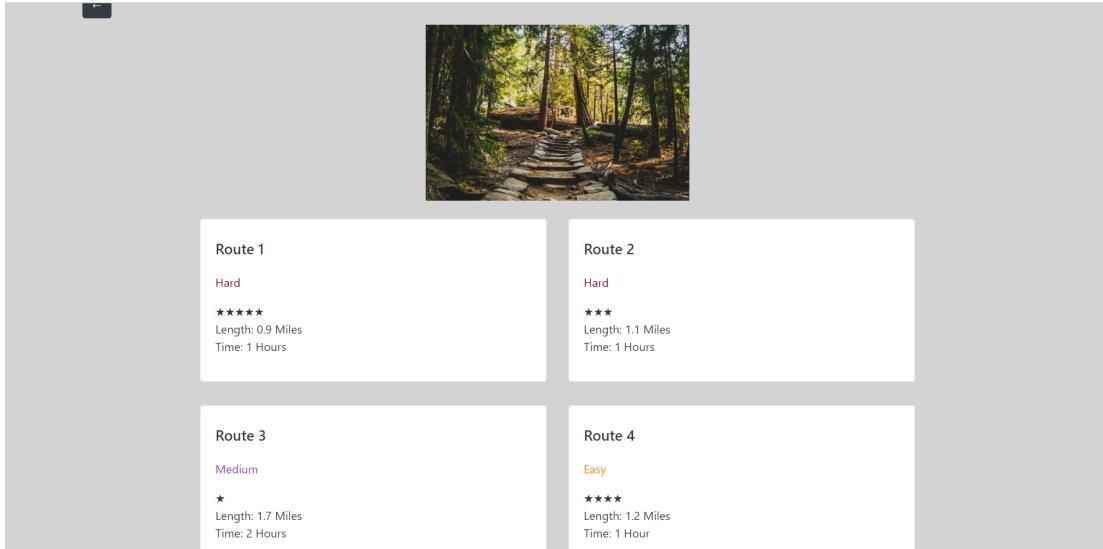


Figure 3: After selecting a location, the user sees potential routes with some general information for the location they selected as well as a photo of the area.

At the center of the page (for Figure 3) we can see an image of what the trial looks like, to present the user with a visual representation of the location. At the top left of the page is also a back button to allow the user to navigate to the previous page if they made a mistake or decide to change their mind. Beneath the image of the trial are four possible routes the user can select with all the relevant information of difficulty, rating, length and time of the route presented in a card format. The difficulty of the trail is also coordinated with orange being easy, purple being medium, and red being hard in order to make reading the information more efficient. Once a user selects a route, they are presented with additional options for the route (Figure 4):

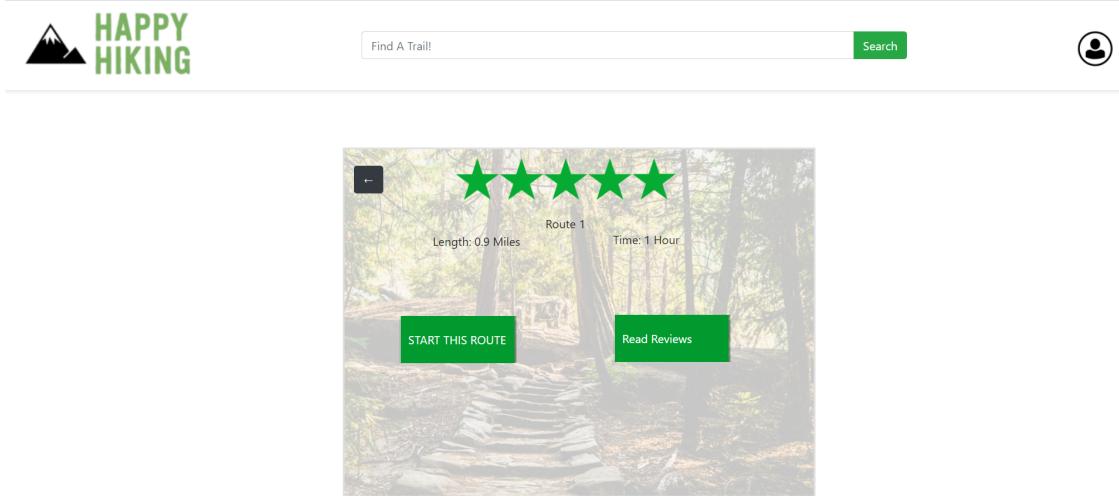


Figure 4: After selecting a particular route, the user is given the option to start traveling on the route, read reviews from other users, or go back to view other routes.

If the user selects the option to start the route they are presented with additional details on the route(Figure 5). One alternative we considered for this page was to leave the additional details out so the user could focus more on the route itself. We decided against this modification however since we received overwhelming positive feedback on our heuristic evaluation for this feature.

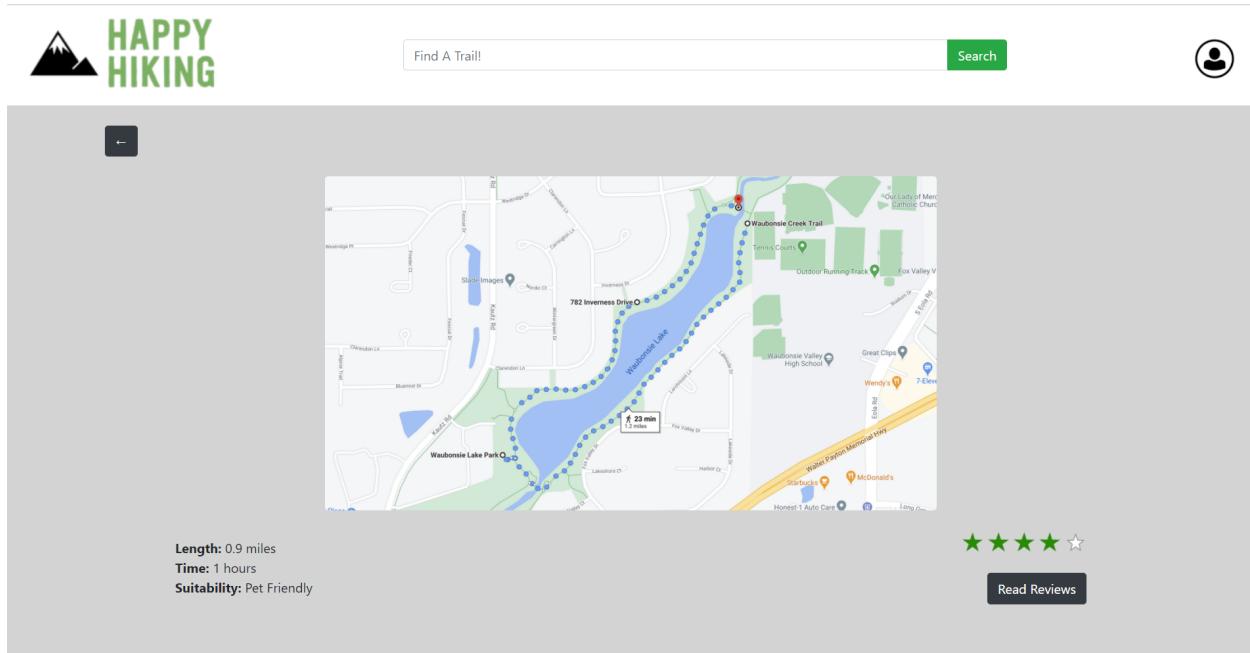


Figure 5: Image of the route is displayed on the page as well as additional information on the route itself.

The user can then select the Read Reviews page(Figure 6) to read reviews about the trail from either the start route page(Figure 5) or the route details page(Figure 5). We decided to display only four reviews, however based on the feedback we received from our user testing, the second limitation we found that it would have been a better idea to expand the reviews on the same page rather than to display more reviews on a separate page.

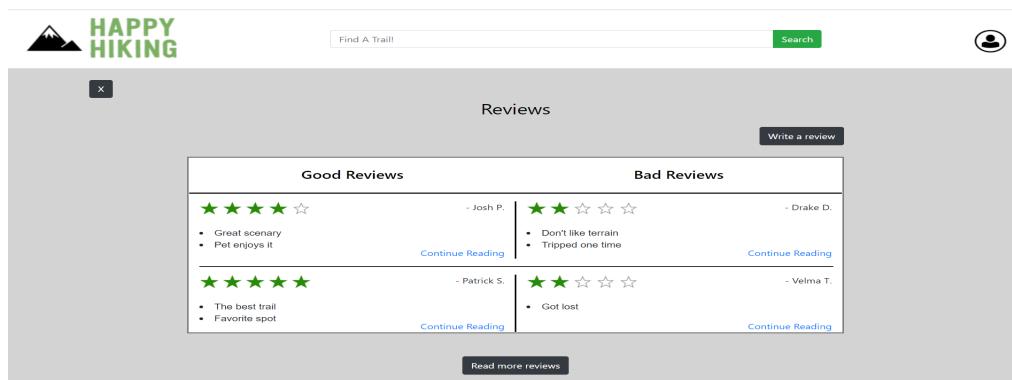


Figure 6: Reviews on the route are displayed allowing the user to read through the ratings and reviews to determine if they would like to hike this trail.

Finally once the user has hiked a route on a trail, they can leave a review to aid other hikers who are less experienced(Figure 7). Our paper prototype did not have any confirmation that a user review had successfully submitted. We decided to implement this feature(Figure 8) for our heuristic evaluations and our user testing. With the addition of visual feedback for a successful review submission we received positive feedback from both our heuristic evaluation as well as our user testers.

The screenshot shows the Happy Hiking website interface. At the top left is the logo 'HAPPY HIKING' with a mountain icon. To the right are search bars labeled 'Find A Trail!' and 'Search', and a user profile icon. Below the header is a modal window titled 'Rate this trail:' with five stars. The form includes fields for 'Name' (text input), file upload ('Choose File'), and three dropdowns for 'Pet friendly', 'Child friendly', and 'Wildlife danger' (each with 'Yes' and 'No' options). There is also a text area for 'Add additional comments here...' and a placeholder image box with a 'No image available' message. At the bottom of the modal are 'Cancel' and 'Submit' buttons.

Figure 7: Review for a trail after a hike has been completed.

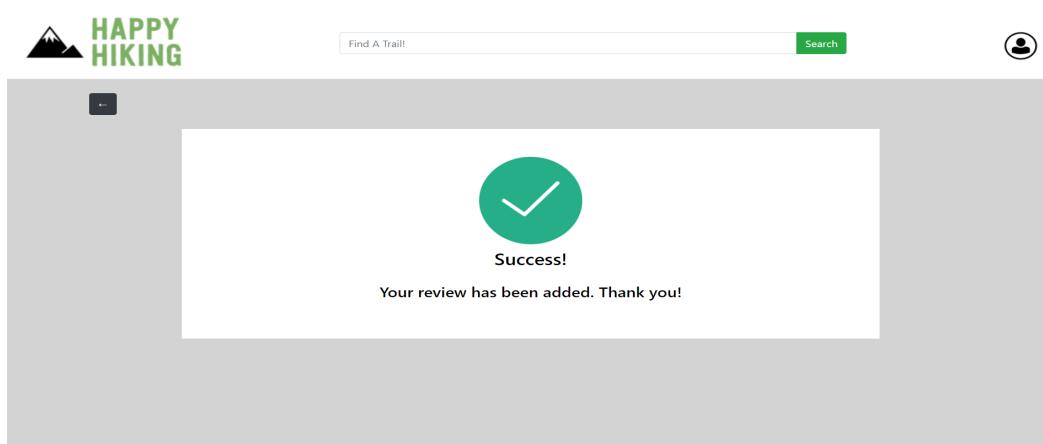


Figure 8: User feedback once a review has been successfully submitted.

Implementation:

The implementation of our website is mainly in HTML, CSS and Javascript. For different condition handling we have extensively used javascript throughout the application. Moreover, we have used Bootstrap throughout the application for improved layout. It helped us keep our layout modernized and standardized.

Starting off, we kept the landing page of our website simple and focusing on the core task i.e. searching for a trail. We did not add any other side functionalities or anything on the first page and just kept the search bar in the center so that the core idea or task remains focused and fulfilled. Following the same pattern further, we kept the only one as the number of functionalities or tasks limited to page so that the scope at a current point of the application is clear and it's easier for the user to follow the steps or keep track of his progress throughout the application.

We decided not to use a backend and just used javascript to keep some of the data saved while the rest was static for the current application. Another design decision that we took was to have a template for the header which was included in each page to maintain consistency and keep the overall layout of the application similar.

Lastly, for each static layout, we decided to make different pages depicting different data, descriptions and layouts. This helped us in making our application look realistic enough even in the absence of a proper backend and also provided us the opportunity to have to do more work on the frontend.

Evaluation:

We conducted user testing on a total of 2 users. Both the users belonged to the target audience i.e. interested in hiking and trekking but are not professionals. The tasks that we requested the users to perform were the same as we asked in GR3. The tasks are listed below as well. The experiment was conducted on a laptop with a running internet and a browser. We just opened the first page of the website for the user and asked them to perform a certain task further. During the testing however, no help was provided to the users at all. They were closely observed from the starting point onwards.

Scenario Tasks:

#	Task
1	Start on a trail with medium or hard difficulty and is at least 1 mile in length.
2	Comment, rate, and submit a review about a trail.

Briefing:

The name of our web application is “Happy Hiking”. The purpose of this application is to provide ease of access towards basic information of hiking trails to novice hikers. Apart from beginners, the application also allows hiking hobbyists or experts to post their experiences and reviews regarding different trails they have been to.

Using the application is quite simple as the user can search for hiking trails or options for different trails within a city or near his or her location. Data such as the difficulty of the route or whether or not it is friendly to specific groups such as children or pets are also provided. The users are able to make their profile on the website.

There is no prior knowledge required to use this application. Even if the user does not know the names of any trails, he or she can simply search for the ones within their city or look up the details regarding the trails near you.

Lastly, thank you for being a part of this user testing. Please note that it's a test for the interface and not you. Your responses and feedback will help us make improvements in this application's interface.

User #1: The first user is the husband of one of our group members. He maintains an active and healthy lifestyle and loves going out for a trek or hike whenever given a chance. However, he is not an expert and not very well aware of different treks and trails and thus falls well under our category of users.

User #2: The second user is a friend of another group member. She also keeps a healthy diet and overall lifestyle. She rarely goes hiking but she does regularly like to walk/jog around her neighborhood with her dog. She is also not very familiar with hiking routes and would be part of the target audience for this application.

Usability Problems and Possible Solutions:

1. On the “all reviews” page, the user expected the four preview reviews to also be displayed on the “read more reviews” page. This problem would be related to the idea of external consistency and user expectations.

The straightforward solution would be to add the four preview reviews to the list of viewable lists in the “all reviews” page. Another solution would be, instead of bringing the user to a new page to view all available reviews, would be instead to expand the current page to display more reviews and/or have a page system to keep the website size reasonable. (**Major**)

2. On the first page the user was confused for a while as in what to enter in the search bar. This particularly applies to a user who isn't aware of the names of any trails while the hint in the search bar says "Find a Trail!". This misled the user that he can only enter a trail name and not a city or location so that nearby trails are shown.

The solution to this problem would be simple where the hint should say "Enter a city or trail!" or something similar which suggests what could be a possibly accepted input. Another option would be to show a dropdown from which the user can choose. However, it's easy for the user to learn this by using the website once. (**Minor**)

3. For task 1, when the user has entered the location, the next page shows three markers numbered 1, 2 and 3. The user got confused here as in what to do with the markers and if they are clickable.

A better idea to get rid of user's confusion here would be to provide feedback with names of locations when hovered over these markers or show names for each location as a dialogue box above the marker. (**Major**)

4. For the first task, the user is able to navigate till the last page after clicking the start route button. However, the user expects some kind of feedback on that page to know what is happening or what will happen next. Since, at this point the user reportedly said that, "What now?"

A solution to this problem would be to display some kind of heading as feedback saying "You are on your way" or "1 mile to go" etc. (**Major**)

5. For task 2, the user gets to the page after clicking the start trial button just fine but is confused after that. Since the page only displays "Read reviews" and nothing regarding writing one. However, the user finally gets there after clicking the "Read reviews" button but not easily or without getting confused.

Along with the read reviews button, a write review option shall also be provided on this page. This option shouldn't only be limited to the page with all the reviews. (**Major**)

Reflection

The creation and designing of our web application to be more human-centered has been an insightful process. When creating our first mockups, using extremes to help diversify our mockups allowed for new design ideas to appear and take part in our final design in GR5. The particular extremes of ultra-safety and ultra-efficient had the most impact. Ultra-safety having our final design containing a plethora of navigation buttons to allow them to always feel in

control of which parts of the application they want to be in. And ultra-efficient to effectively display the information of various park information in a concise manner, trying not to make the user click and travel around the website more than they have to but also not compromising the aesthetics of the website. Another skill we learned was how to properly combine all our separate ideas into one optimal one. Seeing which pages and features should prioritize usability aspects like safety or short-term memory load more. Like in a past lecture, taking the time to create designs separately and then coming back together to discuss shows the importance of working and discussing for the best outcome/product. Having a willingness to communicate on whether a feature should be implemented in one way or another benefits the team.

Some things that our team would do differently would be to have a greater emphasis on the actual navigation aspect of our website. Our design currently provides an overhead view of the trail and general details of the overall path. We think that in the future we would also like to design and implement directional navigation for how the user should best traverse their selected route and potential alternative routes when a block comes up or maybe the user wishes to hike for longer than originally planned. Another thing we would do differently is greater focus on for users on mobile devices. Though our website is responsive to screen sizes, it is still designed around web use on a computer rather than a smartphone. We would potentially like to delve more into the extreme of mobile display use to better provide information to users looking on their phone. Maybe we would even develop an iOS/Android app rather than a web application to take advantage of technologies native mobile apps have over web apps such as being able to function without the internet. This would accommodate users who may be hiking in an area where they can't get a internet signal but a native mobile app could save the information beforehand which our web app currently doesn't provide.

The decision process for choosing features to implement revolved around providing general hiking information to the user. So at the very base of that idea is the route itself; giving the user routes around the area they are interested in. Displaying reviews from other users to help them make a more informed decision on the route that's best for them and so that they won't have to look through various different websites (that may be inconsistent) to get the input from others who've taken a path. And lastly, also allowing users to give their own feedback so that future users can also gain any insights on a particular route. To make our prototype, we first started with our mockup designs that considered extremes of various aspects of usability (such as efficiency or tiny-screen). Then after that we individually created designs that combined all our various individual sketches and discussed the most practical ones. After that, we met and made our final design as a group from those individuals combined designs. Feedback from user testing helped us fine-tune our designs to provide a more positive user experience. Moving from paper sketches to a higher-fidelity website implementation showed that there would be a difference between the user using the finger/sliding what they'd like to do (with the paper prototypes) and how it translates to use with a mouse and keyboard on a website.

The evaluation process only continued to help us improve our design moving towards a final product. The heuristic evaluations helped us show how many people took notice into the

smaller details such as sizing and placement. For sizing, the size of buttons and larger ones demonstrate a certain level of greater importance/attention. Decreasing the size of some of these elements removed certain undesired behaviors of the user getting side-tracked by these elements during testing. Placement of elements showed what certain elements such as a “Read More” button should be placed relative to other information. One aspect of our final design that combines both sizing and placement was our search bar. To better gain user attention, we increased its size and placed it in the center of the screen to help the user identify how they can get started with searching for a route. Evaluations also helped us learn more about certain assumptions we made as the designers and developers that the user may not necessarily have. One example is that we assumed that the user would know that the settings would not contain the elements that would allow them to complete their scenario tasks and was more to just demonstrate an account feature. Yet in reality all of them spent a significant amount of time in the settings figuring out what they could do from it. Sizing came up in this situation too because at this time our settings icon was very large and gave users an impression that it was the way to get started rather than our search bar. These are some of the reflections and lessons our team has learned while brainstorming, designing, creating, and testing our project.

PR2

Youtube Link: <https://youtu.be/Metv90t9MwM>