

COMPSCI 325

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## Milestone 3

### I. Final Prototype:

Our team is addressing the challenges international students face when navigating college life in the U.S., particularly in the Five Colleges area. These students often struggle to find accurate, community-specific information on key topics like housing, visas, job opportunities, and cultural adjustment. While universities provide some resources, they often lack the specificity international students need, and off-campus information is rarely available. Additionally, connecting with peers who share similar backgrounds can be difficult, leaving students feeling isolated. We aim to create a mobile app that centralizes important resources, facilitates communication between new students and experienced peers, and builds an international community through the shared platform.

The main features we have are Interactive Q&A Sections, Interactive Map, Chat Room Based on Language or Region, and USA Survival Guide for Internationals. The tasks for each feature are as follow:

**Interactive Q&A Sections:** The Q&A section allows users to post questions within “Housing,” “Job/Internship,” “Course Recommendations,” or “Visa & Legal Support” categories through the button “Ask a Question.” They can answer a question by browsing the question list and enter into one question’s page and type to respond. Users can also post a job opportunity through the “Post a Job” option and fill in the job details. Finally, they can search for job / internship opportunities and set filters to narrow down their search by criteria like “Visa Sponsorship Available,” “Industry,” and “Location” for their desired information.

**Interactive Map:** The Interactive Map helps users to tag and explore locations relevant to international students. They can view location details by clicking on one tag on the map and see details. In that section, users can choose to leave a comment by clicking on “Leave a Review.” On the map, users can also tag a new place by clicking the “+” button or “Add Location” option and fill in details such as the name, address and category (e.g., “Housing,” “Cultural Event,” “Grocery Store”).

**Chat Room Based on Language and/or Region:** Users can join or create language/region-based chat rooms for social and academic connections. They can join chat rooms by clicking on a chatroom and join if it’s public. For private chat rooms, they can send a join request. They can filter the chatrooms based on a language or a region by clicking on the filter buttons and choosing within the dropdown menu. Users can also search for a specific chatroom with the search bar on top.. If they don’t find any room of their interest, users can create their own chat room.

**USA Survival Guide for Internationals:** The USA Survival Guide allows users to access information on common how-to and what-is questions international students might have. Users can search for specific topics through the search bar, browse categories, and read articles by clicking on one thread. Users can save and unsave an article through the “Save Article” button. Additionally, users can suggest new topics by using the “+” button and ask for a guide on a topic of their interest.

Our final solution is largely consistent with our proposal in milestone 1 because we are focusing on providing a platform to share information and network with peers. However, informed by our survey analysis and the personas, we realized that community building is the most essential part we want to facilitate through our platform. Therefore, in our final solution, we have emphasized the interactivity and ways to engage with the community of our app. For example, we added the upvote a post for interactive Q&A part so users can choose the posts they care the most about to the top of the list. Similarly, for our survival guide section, we offered the option to suggest a topic so we can update our survival guide based on users' needs. Other functions like search and save an article are all examples of how we improve the customization of the app and facilitate their interaction within the community.

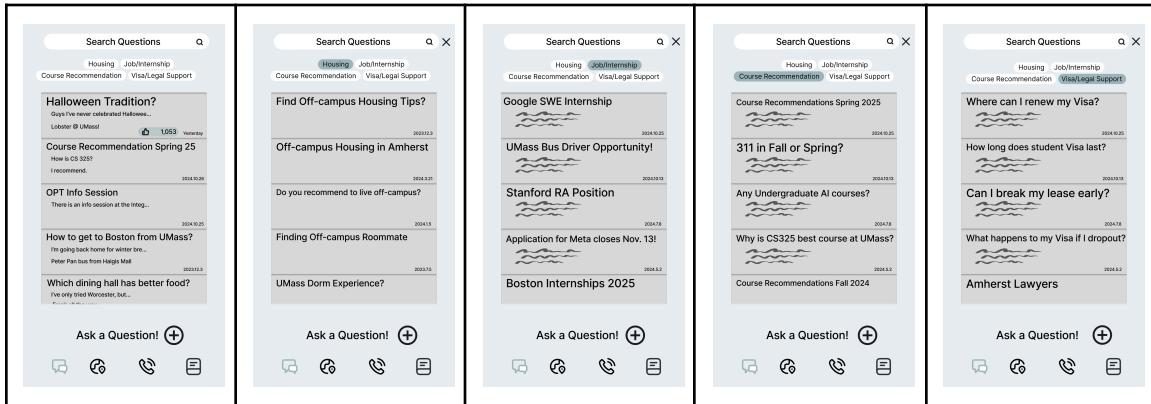
During our milestone 2 we created three low fidelity prototypes; a mobile app, web app and a kiosk as a non-traditional design. Firstly, we learned that a mobile app was best suited for interactions and incorporation of desired features in our design. An app-based system offers good affordance and consistency through the positive transfer effects from modern app designs - supporting crucial interactions naturally like chat rooms and map navigation. However, compared to the web app or even the kiosk design, we noticed immediately that a large challenge would be the reduced screen space and adequately displaying a large amount of information without overwhelming the user. Secondly, the web app also seemed promising - sharing many traits with the mobile app design, especially in the concern of needing to display a lot of information and being content heavy. Given the similarity between the two, we leaned towards a mobile being superior for the added mobility it offered our design. Lastly, the kiosk outlined further exactly why a mobile app was superior - highlighting clearly exactly which features are limited or blocked once you remove instant access potential and portability of the design. Namely, the kiosk was unable to reasonably include chat room functionality or adding/rating locations on the map - both defining features we wanted to include.

From the above, it's clear the challenges were not only designing using the right interface but incorporating all the features fully and displaying necessary information in full given the limited screen space of mobile devices. Being our largest challenge and prevalent in every feature, we kept note of this as we were designing our high-fidelity prototype - building initial framework ideas and then reducing space used, or encapsulating functionality into smaller separate spaces, which in turn additionally made our features more streamlined and efficient, in combination with improving white space usage. However, an additional challenge outlined by our initial feedback survey and persona analysis was fostering adequate community engagement. To solve this more complex issue, we added more user-involvement-focused functionality, such as upvoting posts in the QA section and greater user agency with the map, allowing users to directly add their own recommended spots. Through our iterative prototype designs and feature refinement, we successfully navigated these challenges, creating a design solution that balanced interactivity, functionality, and accessibility for international students.

An interactive version of the prototype can be found [here](#). This improved version incorporates feedback from our usability testing. Below, we also listed out screenshots of each task.

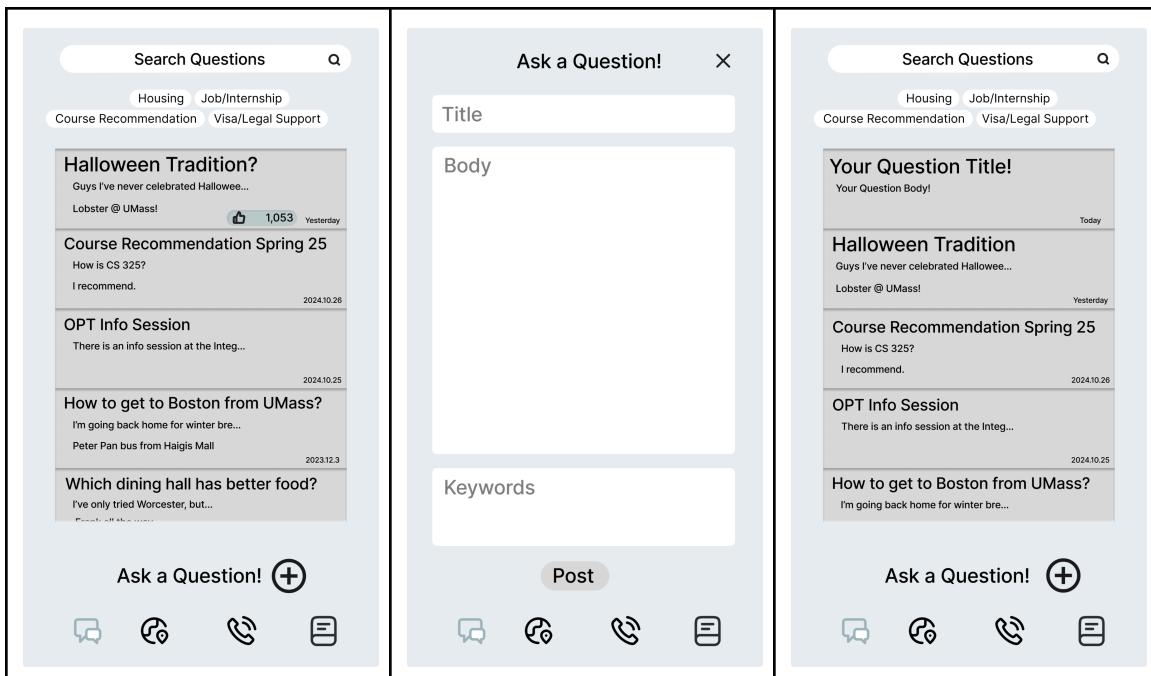
## 1. Forum

### - Filter Questions



Clicking on any filter will show only those questions related to the selected term. Clicking on the filter choice again, or the “X” in the top right will return the user to the main forum page.

### - Ask Question



Clicking on the “+” next to “Ask a Question!” will bring the user to the ask question page, filling in the title, body and keywords to help it be found with different searches.

## - Answer Question

The image consists of three vertically stacked screenshots of a mobile application interface.

- Screenshot 1:** Shows the search interface with a search bar at the top. Below it are category filters: Housing, Job/Internship, Course Recommendation, and Visa/Legal Support. A list of questions is displayed:
  - Halloween Tradition?** (Lobster @ UMass, 1,053 upvotes, Yesterday)
  - Course Recommendation Spring 25** (How is CS 325? I recommend. 2024.10.26)
  - OPT Info Session** (There is an info session at the Integ... 2024.10.25)
  - How to get to Boston from UMass?** (I'm going back home for winter bre... Peter Pan bus from Haigis Mall 2023.12.3)
  - Which dining hall has better food?** (I've only tried Worcester, but... 2023.12.3)
- Screenshot 2:** Shows the question page for "Halloween Tradition?". It displays the original question and two answers:
  - Lobster @ UMass!** (Guys I've never celebrated Halloween before. I know, like, nothing about it. Are there any big celebrations here? Or any cool events for it around campus? 1,053 upvotes)
  - There's free candy at the Student Union.** (There's free candy at the Student Union.)
- Screenshot 3:** Shows the question page for "Halloween Tradition?" again, but with a large empty text input field where answers would normally be posted. The "Post" button is visible below the input field.

Clicking on a question will bring the user to that question's answer page, containing all answers, a panel for the user to type in their answer, and the upvote button and current upvotes for the question.

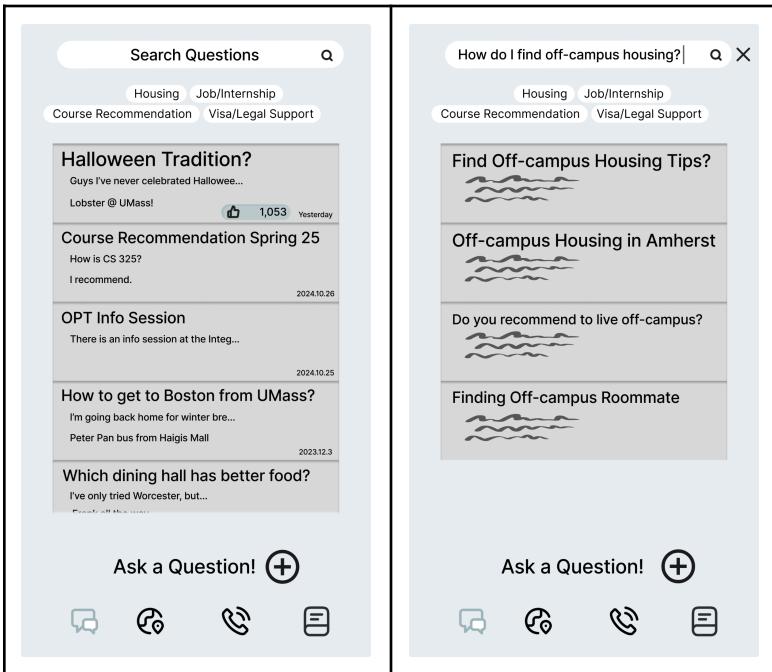
## - Upvote Question

The image consists of two vertically stacked screenshots of a mobile application interface.

- Screenshot 1:** Shows the search interface with a search bar at the top. Below it are category filters: Housing, Job/Internship, Course Recommendation, and Visa/Legal Support. A list of questions is displayed:
  - Halloween Tradition?** (Lobster @ UMass!, 1,053 upvotes, Yesterday)
  - Course Recommendation Spring 25** (How is CS 325? I recommend. 2024.10.26)
  - OPT Info Session** (There is an info session at the Integ... 2024.10.25)
  - How to get to Boston from UMass?** (I'm going back home for winter bre... Peter Pan bus from Haigis Mall 2023.12.3)
  - Which dining hall has better food?** (I've only tried Worcester, but... 2023.12.3)
- Screenshot 2:** Shows the question page for "Halloween Tradition?". The upvote count has increased to 1,054, and the upvote button is now green:
  - Lobster @ UMass!** (Guys I've never celebrated Halloween before. I know, like, nothing about it. Are there any big celebrations here? Or any cool events for it around campus? 1,054 upvotes)

Clicking on the thumbs up button on a question posting will add an upvote to the question, increasing its total upvotes by 1 and turning green to signify to the user that they have upvoted that question.

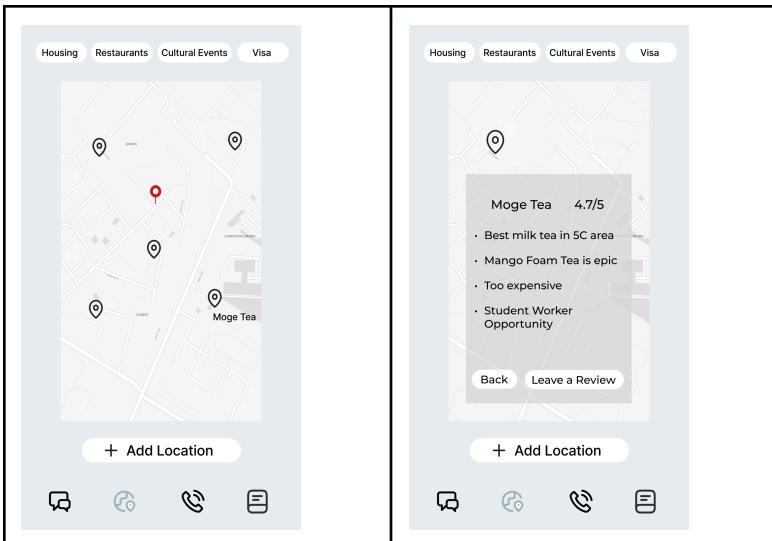
## - Search Question



Clicking on the “Search Questions” bar will let users search questions, returning relevant results based on attributed keywords for each question. Clicking on the “X” in the top right will let users return.

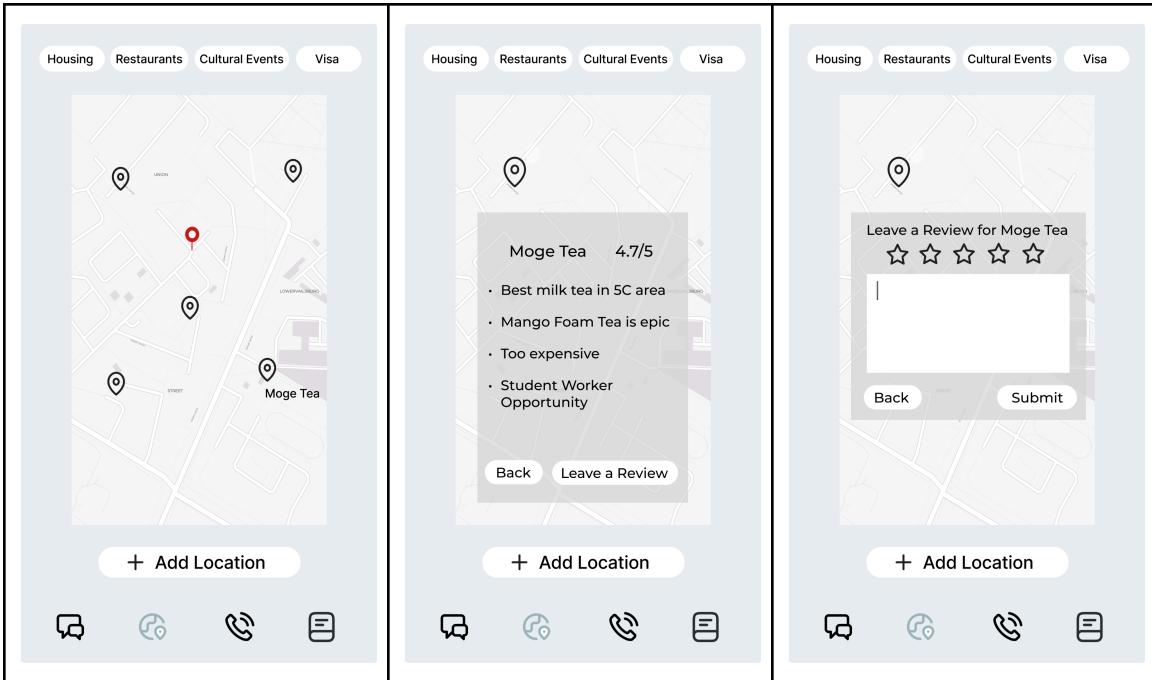
## 2. Map

### - View Location Details



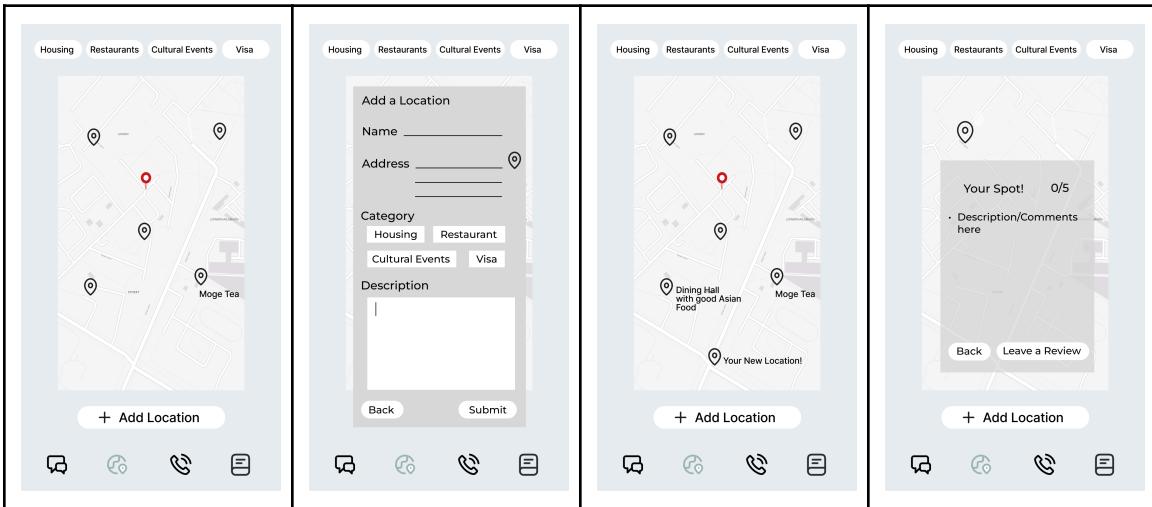
Clicking on a posted location will display an overlay on the map with relevant user-reported information, such as rating and description/comments, and click “Back” to return to the map page.

## - Review a Location



On the view screen for a given location, users can click “Leave a Review” to give their own rating for a location and any comments. Then, users can click “Submit” to add their review for this location, or press “Back” to return to the location details page.

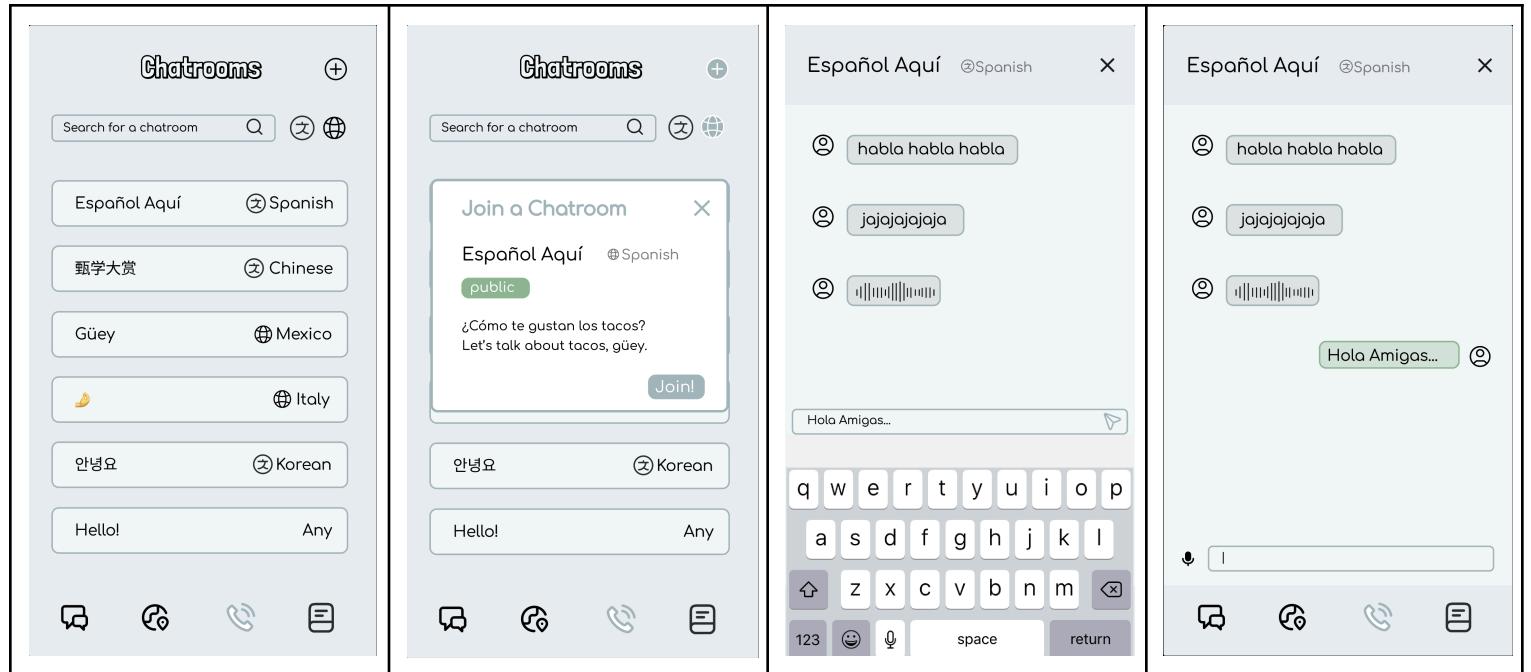
## - Add Location



Clicking the “Add Location” button below, users will be brought to a screen to fill in relevant details for their new location. Users can then press “Submit” to add their location, or press “Back” to cancel. By default, a new location is created with no review data.

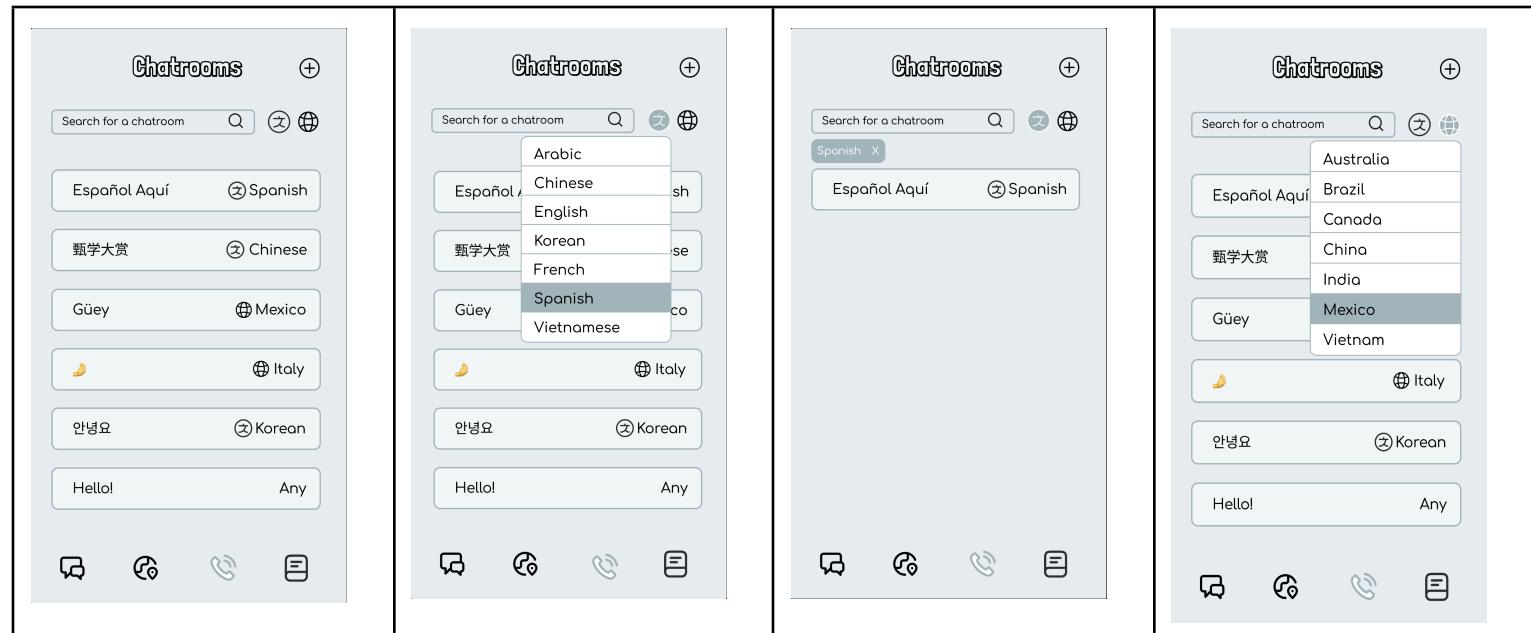
### 3. Chat Rooms based on Language / Region

#### - Join a Chat Room



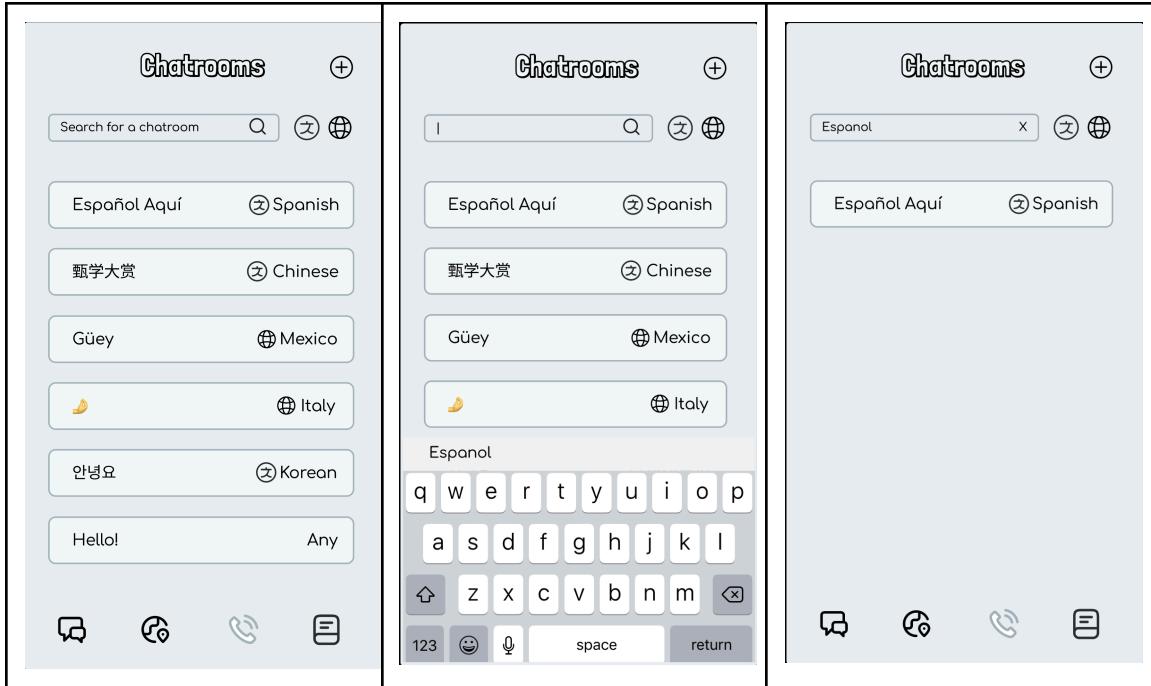
Chatroom interface, click one chat room to see detailed information, click join to enter the chatroom, send a message.

#### - Filter based on language or region



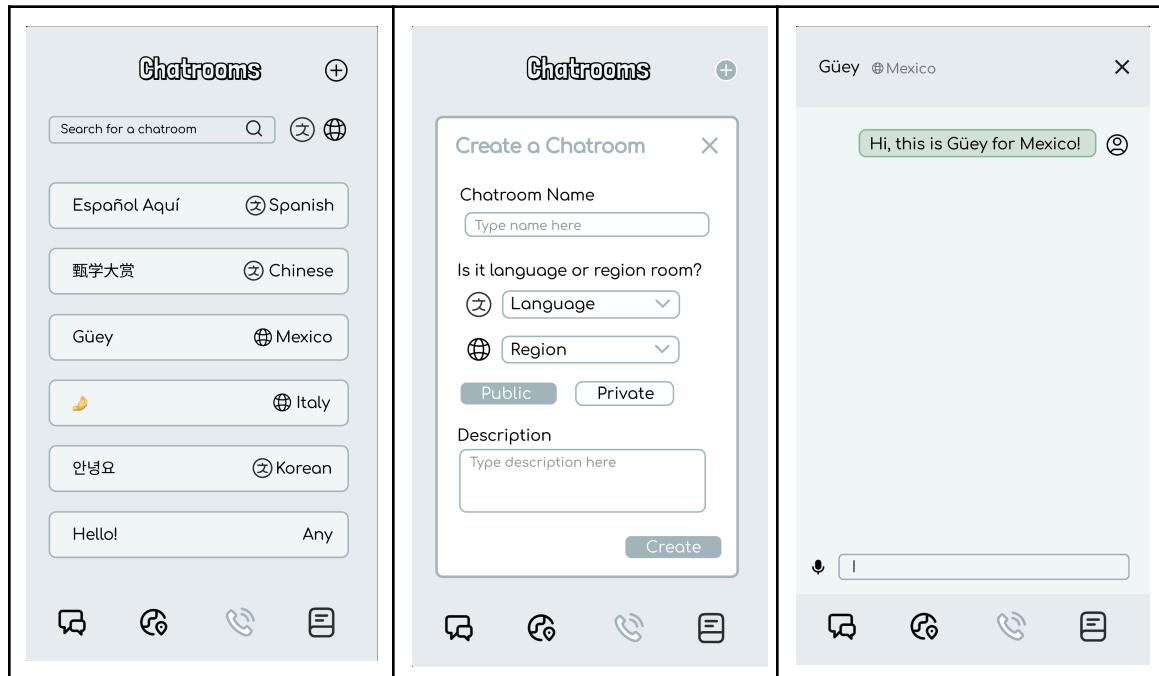
Chatroom interface, filter based on language, see filtered example, OR filter based on region.

- Search for a chatroom



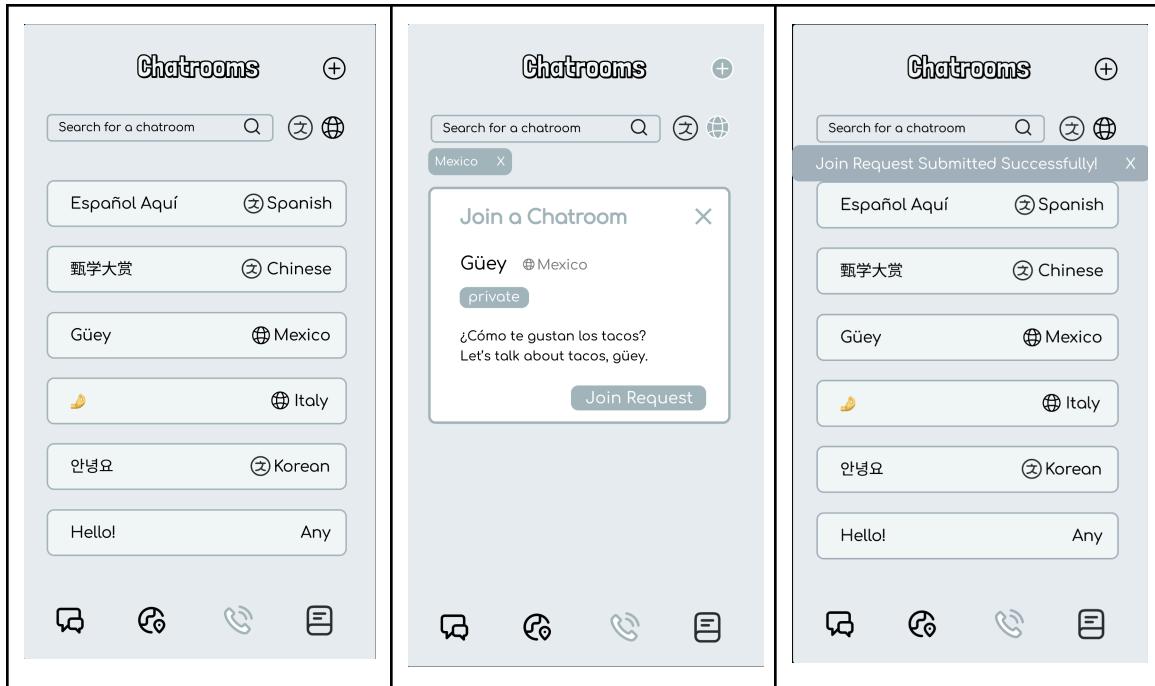
Chatroom interface, use search bar to search for a language, see search result.

- Create a chatroom



Chatroom interface, use plus sign to create a chatroom, enter created chatroom.

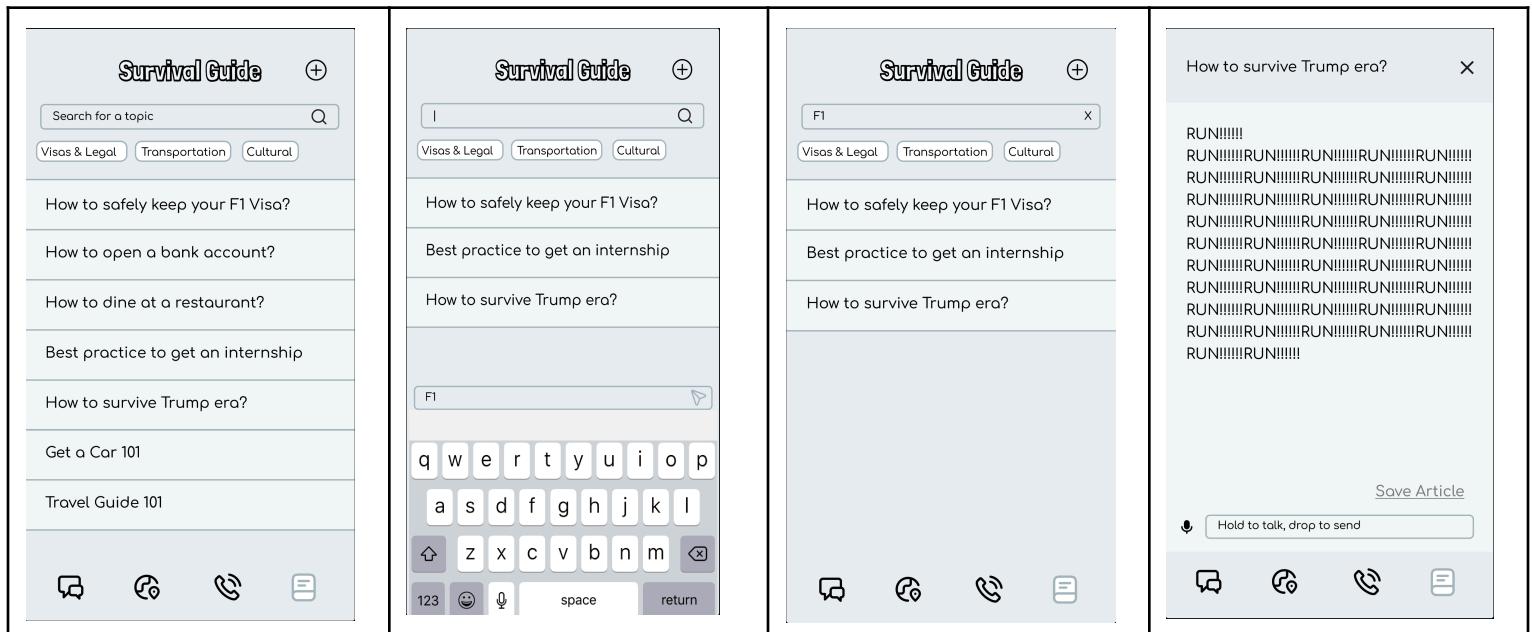
- Request join a private chat room



Chatroom interface, check a private chat room, send a join request.

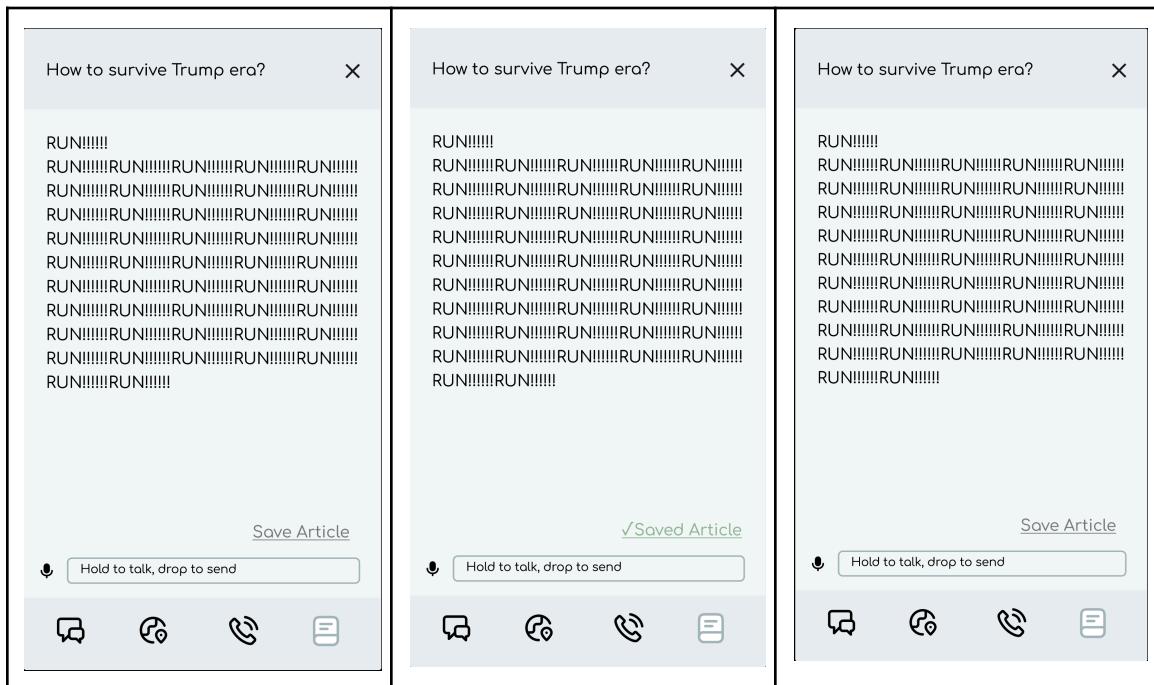
## 4. International Survival Guide

- Browse topics, search for specific topics, enter the thread



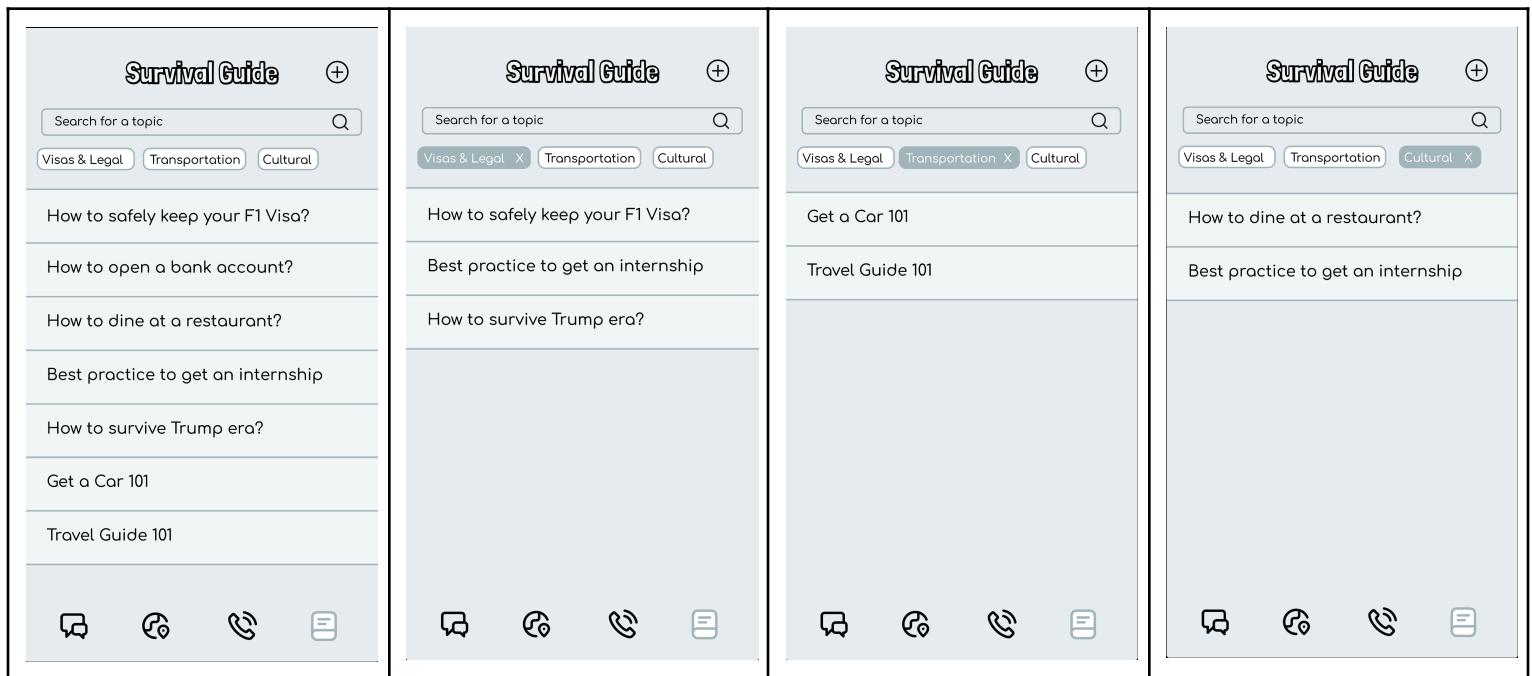
Survival Guide interface, search for a topic, see search result, enter a guide interface.

## - Save an article



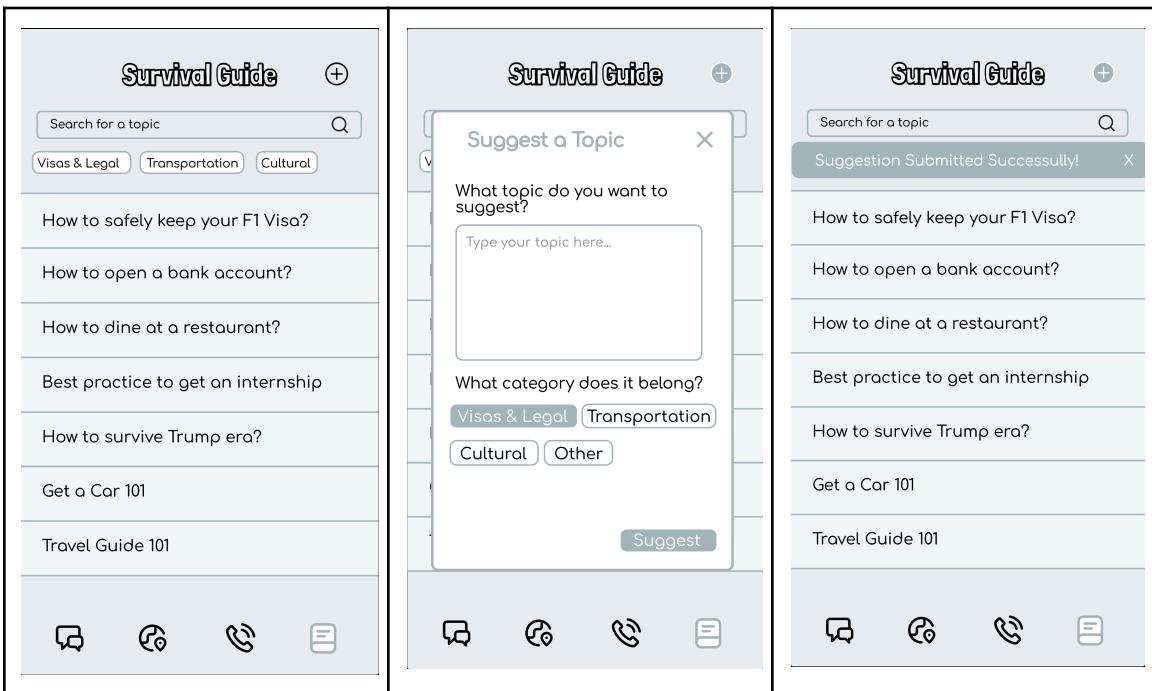
In a guid interface, save the article, un-save the article.

## - Filter topics



Survival Guide interface, filter based on different categories.

- Suggest a topic



Survival Guide Interface, use plus sign to suggest topic, submit suggestion.

## II. Evaluation and Analysis:

### 1. Evaluation method:

To evaluate the usability of our high-fidelity app prototype, we will conduct usability testing. Our testing protocol involves recruiting four participants, each selected by a team member from their peers to ensure diversity and practical recruitment. Ideally, these participants shall reflect our target audience- which consists of international students. We will use the think-aloud method which encourages participants to say their thoughts, actions and reactions while performing designated tasks. This approach helps us capture not only the steps users take but also the motivations, thought processes and potential challenges they experience along the way.

Each participant will receive a written task sheet with clear instructions for the tasks to be completed. Participants will be asked to read each task instruction aloud before beginning to ensure they understand the tasks.

To measure the usability of our prototype we will use both quantitative and qualitative methods. For quantitative: we will record and write down the time it takes a user to complete an individual task given no assistance. This would be repeated for each task. By comparing the average or median (which is not susceptible to outliers) time it takes a user to complete each task- we will be able to see where our prototype performs well and what needs improvement. Additionally, for the 6 tasks in our evaluation we will measure the success rate. If a user is able to correctly complete a task in a predetermined time, the

interviewer will mark that down as a success. For example, a user successfully completed 4/6 tasks. This number would then be compared against the other participant to measure the effectiveness of each task in our prototype. These methods complement each other and help us to further understand our data. By comparing overall completion time with task success we can see exactly how effectively we navigate our app.

In regards to qualitative: we will write down participants' feedback through the think-aloud method and conduct a post-test interview to gather details on their experience. To analyze our qualitative data we will perform thematic analysis. During each evaluation the interviewer will have a piece of paper to write down keywords or codes. This will allow us to review the themes and further understand the strengths and weaknesses of our prototype. We will use affinity diagramming to group similar observations from the think-aloud feedback and post-test interviews. Combined, these methods will allow us to identify trends and potential themes in our data.

Task	Record time user takes to complete assigned task(s):	Time criteria	User correctly completes $\geq 1$ parts of the assigned task: Yes/No	If meets time criteria AND task completed == Yes: SUCCESS Else: FAIL
1.Ask a question		45 sec or less		
2.Upvote question Answer question		30 sec or less, OR $\leq 60$ s for both tasks		
3.Search for location Browse reviews		30 sec or less, OR $\leq 45$ s for both tasks		
4.Add location Add review		45 sec or less, OR $\leq 60$ s for both tasks		
5.Join chat room Create chat room		45 sec or less, OR $\leq 60$ s for both tasks		
6.Browse guide View article		30 sec or less for both tasks		

**Notes to Evaluator:**

**Success Criteria:** A "success" if at least one sub-task is completed within the time frame, even if the other is not started or is incomplete.

**Partial Completion:** When the user navigates to the correct feature but doesn't complete the action, do not count as successful (E.g: Locates interactive map but does not add location or a review).

**Time Monitoring:** Evaluators should ensure that they start timing only when the user begins the task and not while they are preparing or asking questions about the task.

**Distractions/Interruptions:** External distractions or interruptions that affect task completion should be noted but not counted against the user, provided these are beyond their control (e.g prototype falls off table, alarms, etc).

## 2. Protocol script:

### a. Introduction

Hi [user], how are you?

Thank you for participating in our usability testing. Today, we'll be evaluating an app prototype designed to assist international students. I'd like to start by asking you some questions about who you are and your background. You'll then complete a few tasks and we'd like you to think aloud, sharing your thoughts and actions as you go. This will help us understand your experience with the app.

We're doing this usability test to see how users interact with our app and to hear their thoughts on it. Please know that this is a test of the app, not your abilities so your honest thoughts are really important to us. Is there anything you'd like to ask before we get going?

### b. Background questions

Could you tell us where are you from and how long you have been an international student?

### c. Instructions

Thank you for your answers! We're now ready to start the test. Before we dive in, I'd like to remind you of a few things: If something isn't working, don't worry, it's an issue with our software, not anything you've done wrong. There are no wrong answers here.

I'll be giving you written task instructions shortly. Please read each one aloud before you begin. As you work through each task, keep talking aloud, sharing what you're thinking, what you expect to see or do, where you're navigating on the page, why you're clicking somewhere and what you expect to happen when you click. If you have questions, feel free to ask and I'll do my best to help.

Finally, we'd like you to be as honest as possible. If something doesn't make sense on the page or if it's not working right, please tell us. Don't worry because you're not going to hurt our feelings.

### d. Tasks

Let's start with the first task:

#### Task 1: Ask a Question in the Q&A Section

Description: Please try to post a question in the Q&A section. Don't forget to tag your question with some relevant keywords so it's easy for others to find.

Goal: Assess participants' ability to navigate the Q&A section, select categories, post questions and apply tags.

### **Task 2: Upvote and Answer a Question in the Q&A Section**

Description: Now, can you browse through the questions? If you come across any questions you also want answers to, go ahead and upvote them. If you find a question you can answer, please share your response.  
Goal: Assess participants' ability to navigate the Q&A section, upvote questions and provide answers.

Okay let's move on to another page:

### **Task 3: Use the Interactive Map to Find Relevant Locations**

Description: Please head over to the interactive map and try searching for specific locations, such as grocery stores or international restaurants. Take a look at the reviews or any tips left by other users for these places.

Goal: Evaluate ease of use in searching, identifying and accessing tagged locations relevant to international students' needs.

### **Task 4: Add a new review or location on the Interactive Map**

Description: Now, let's say you'd like to add some reviews. Can you add a review or tip to any location on the map? If you know of a location that isn't on the map yet, please show us how you would add it.

Goal: Evaluate ease of use in leaving reviews and adding new locations.

### **Task 5: Join a Chatroom Based on Language or Region**

Description: Now, let's try out the chat room feature. Could you join a chatroom based on either language or region? If you don't see one that matches your preference, how would you create a new room?

Goal: Determine if participants can easily navigate the chatroom feature, select language or regional filters and access the chatroom environment. Observe whether they can identify and choose between public or private chat rooms.

### **Task 6: Access and Use the USA Survival Guide for Internationals**

Description: Finally, can you find the Survival Guide section and search for any topic you might want to explore as an international student, like "visa requirements" or "renting off-campus housing"? Browse the search results and select a guide article to view.

Goal: Test the ease of accessing and using the Survival Guide, as well as the functionality of the AI-powered search.

#### **e. Debriefing**

And that wraps up the final task! Before we finish, I'd like to ask you a few quick questions:

1. How do you feel about the overall experience?
2. How do you feel about the flow of the app?
3. Was there anything you found particularly confusing or difficult to use?
4. What did you like about using the app and were there any features you wish were different?

Thank you for sharing your thoughts. Is there anything you'd like to add before we wrap up?

Thank you again so much for taking the time out of your day to participate in this study. Your input today will be extremely valuable for us.

### **3. Evaluation results:**

We conducted usability testing with four participants and their individual results are summarized below. The subsequent section presents our analysis of the collective results from all four participants.

#### **a. Participant 1:**

Task	Record time user takes to complete assigned task(s):	Time criteria	User correctly completes $\geq 1$ parts of the assigned task: Yes/No	If meets time criteria AND task completed == Yes: SUCCESS Else: FAIL	Notes
1.Ask a question	Can't finish the task	45 sec or less	No	FAIL	"When I push the button to ask the question, it doesn't direct me to any other page"
2.Upvote question Answer question	Can't finish the task	30 sec or less, OR $\leq 60$ s for both tasks	No	FAIL	"There is no clear icon to upvote and button to answer the question"
3.Search for location Browse reviews	12 seconds	30 sec or less, OR $\leq 45$ s for both tasks	Yes	SUCCESS	
4.Add location Add review	10 seconds Can't type in yet but can easily find the buttons	45 sec or less, OR $\leq 60$ s for both tasks	Yes	SUCCESS	
5.Join chat room Create chat room	50 seconds for both tasks	45 sec or less, OR $\leq 60$ s for both tasks	Yes	SUCCESS (assisted)	The user was unable to locate the chatroom icon and accidentally selected the Q&A section instead. The evaluator assisted the user by directing her to the correct chatroom icon and then she could easily join and create a new chatroom.
6.Browse	13 seconds for both	30 sec or less	Yes	SUCCESS	

guide View article	tasks	for both tasks			
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1. How do you feel about the overall experience?
  - “I have mixed feelings about it. While some parts were clear and easy to understand, others were quite confusing.”
2. How do you feel about the flow of the app?
  - “It depends on the section. The map and survival guide are user-friendly and easy to navigate. However, finding the chatroom can be quite challenging because of the icon.”
3. Was there anything you found particularly confusing or difficult to use?
  - “Yes, I had trouble with a few things. The chatroom icon was hard to locate and there is no option to upvote posts. Additionally, the search bar didn't respond when I tried to click it”
4. What did you like about using the app and were there any features you wish were different?
  - “I really enjoyed the app’s color scheme because it’s positive and relaxing. The content provided is also very helpful. However, I wish there were more language options available within the app to accommodate a wider range of users.”

**b. Participant 2:**

Task	Record time user takes to complete assigned task(s):	Time criteria	User correctly completes $\geq 1$ parts of the assigned task: Yes/No	If meets time criteria AND task completed == Yes: SUCCESS Else: FAIL	Notes
1.Ask a question	18 seconds	45 sec or less	YES	SUCCESS	The user wanted to type in the large text boxes. No option for tagging posts with keywords.
2.Upvote question Answer question	Can’t finish the task	30 sec or less, OR $\leq 60$ s for both tasks	No	FAIL	No upvote question, answer question functionality.
3.Search for location Browse reviews	10 seconds	30 sec or less, OR $\leq 45$ s for both tasks	Yes	SUCCESS	
4.Add location Add review	15 seconds	45 sec or less, OR $\leq 60$ s for	Yes	SUCCESS	

		both tasks			
5.Join chat room Create chat room	72 seconds for both tasks	45 sec or less, OR $\leq$ 60s for both tasks	Yes	FAIL	The user was unable to navigate the frames well, and got lost quickly on where they were and what they were supposed to be on that page for.
6.Browse guide View article	24 seconds for both tasks	30 sec or less for both tasks	Yes	SUCCESS	

1. How do you feel about the overall experience?
  - “It was fun to use and walk through all the actions.”
2. How do you feel about the flow of the app?
  - “It’s easy and simple to navigate, the design isn’t too complex.”
3. Was there anything you found particularly confusing or difficult to use?
  - “I wasn’t sure if the chatroom name was a name for the chatroom, or a username for me when I clicked and saw the result.”
4. What did you like about using the app and were there any features you wish were different?
  - “I liked how simple the app was, but I think it’d be nicer if the colors weren’t so bland. It would also be nice if there was a report article button.”

#### c. Participant 3:

Task	Record time user takes to complete assigned task(s):	Time criteria	User correctly completes $\geq$ 1 parts of the assigned task: Yes/No	If meets time criteria AND task completed == Yes: SUCCESS Else: FAIL	Notes
1.Ask a question	15 seconds	45 sec or less	Yes	SUCCESS	
2.Upvote question Answer question	Can't finish task	30 sec or less, OR $\leq$ 60s for both tasks	No	FAIL	Didn't find the function to upvote question
3.Search for	10 seconds	30 sec or less,	Yes	SUCCESS	

location Browse reviews		OR $\leq$ 45s for both tasks			
4.Add location Add review	17 seconds	45 sec or less, OR $\leq$ 60s for both tasks	Yes	SUCCESS	
5.Join chat room Create chat room	7 seconds	45 sec or less, OR $\leq$ 60s for both tasks	Yes	SUCCESS	
6.Browse guide View article	10 seconds	30 sec or less for both tasks	Yes	SUCCESS	

1. How do you feel about the overall experience?
  - “The front page is a little rusty, but very helpful for international students. I would love to use the app if there is one.”
2. How do you feel about the flow of the app?
  - “Overall okay, I think it works.”
3. Was there anything you found particularly confusing or difficult to use?
  - “Pretty clear overall. The ‘Ask a Question’ part is confusing because you can only use the plus sign while the big text does nothing. Also the search bar can only be triggered by the ‘search’ little icon, not the whole bar.”
4. What did you like about using the app and were there any features you wish were different?
  - “I wish we can include photos in the ‘Ask a Question’ section.”

#### d. Participant 4:

Task	Record time user takes to complete assigned task(s):	Time criteria	User correctly completes $\geq$ 1 parts of the assigned task: Yes/No	If meets time criteria AND task completed == Yes: SUCCESS Else: FAIL	NOTES
1.Ask a question	25 sec	45 sec or less	Yes	SUCCESS	
2.Upvote question Answer	Can't finish task	30 sec or less, OR $\leq$ 60s for both tasks	No	FAIL	No option To upvote

question					Can't find how to answer a question
3.Search for location Browse reviews	14 sec	30 sec or less, OR $\leq$ 45s for both tasks	Yes	SUCCESS	
4.Add location Add review	17 sec	45 sec or less, OR $\leq$ 60s for both tasks	Yes	SUCCESS	
5.Join chat room Create chat room	45 sec for both	45 sec or less, OR $\leq$ 60s for both tasks	Yes	SUCCESS	
6.Browse guide View article	17 sec For both	30 sec or less for both tasks	Yes	SUCCESS	

1. How do you feel about the overall experience?

“Overall experience was good, I think everything was intuitive and clearly laid out. I appreciate making the submission buttons big and having clear text.”

2. How do you feel about the flow of the app?

“Flow of the app was good, it was modeled pretty similar to most apps. I don’t think anything was too confusing.”

3. Was there anything you found particularly confusing or difficult to use?

“The only thing that was slightly confusing was the little hyperlink subsection beneath the search bar. I first didn’t notice them at all and didn’t know where clicking them would lead to. The other confusing thing was how to upvote a question or answer a question. I didn’t really see an option for that and if there was one it wasn’t very clear.”

4. What did you like about using the app and were there any features you wish were different?

“The app looked good and I definitely can see myself using it like a FAQ page for quick questions.

#### **4. Evaluation Findings:**

##### **a. Quantitative - Summary Statistics:**

Task	Average Time (sec)	Median Time (sec)	Completion Rate
1. Ask a question	19.33	18	3/4 = 75%
2. Upvote Question Answer Question	-	-	0/4 = 0%
3. Search for location Browse Reviews	11.5	11	4/4 = 100%
4. Add location Add review	14.75	16	4/4 = 100%
5. Join chat room Create chat room	43.5	47.5	3/4 = 75%
6. Browse guide View article	16	15	4/4 = 100%

After receiving user input from 4 different participants the times were averaged and the median was computed for each task to account for any outliers. These calculations provide insight into the efficiency and success rate of each task. From the results, it is clear that task 2 has major usability issues because 0 out of 4 participants were able to perform the task successfully. This lack of recorded times highlights a critical design/technical issue and is a top priority for future development. Task 1 and 5 both had a 75% completion rate. While tasks 3, 4, 6 had a 100% completion rate, making them the most efficient.

Specifically, task 3 had the best performance times with consistency between the average and median. There is evidence of variability for task 4 and 5 given the wider range of times. This could be variation between participants but more likely is attributed to some technical difficulties or learning curve that was experienced. Therefore, I would recommend reviewing the notes for these tasks to see what could be improved. Task 1 and 6, has relatively moderate consistency between times. Overall, the participants performed the tasks well and completed the tasks (with exceptions to 1, 2, 5 due to completion rates) well under the defined time limits.

##### **b. Qualitative - Affinity Diagramming/ Thematic Analysis:**

"Some parts clear, others confusing"

"Survival guide is user-friendly"

"Chatroom icon hard to locate"

"Hyperlink subsections beneath the search bar confusing"

"Ask a Question section confusing due to non-interactive text"

"Search bar didn't respond when clicked"

"More language options"

"Report article button"

"Photo uploads in Ask a Question section"

"Color scheme is positive and relaxing"

"Colors too bland"

"Front page is rusty"

"Big, clear submission buttons are appreciated"

**Codes:** Intuitive Helpful Fun Unsure Confusion Visibility Navigation Unresponsive Unclear Missing  
Confusion Languages Safety Photographs Clear Simplistic Relaxing Improve

**Flow (blue):** The app is seen as generally helpful and engaging. However, mixed experiences arise due to inconsistencies in usability.

**Navigation (Red):** The app generally flows well, but navigation issues like unclear icons or overlooked elements (e.g., hyperlinks) disrupt the overall experience.

**Usability (black):** Functional inconsistencies and unclear interface elements inhibit users from completing tasks efficiently, especially with the Ask a Question and Chat Room section.

**Design (Purple):** The app's color scheme receives mixed reviews. Some enjoy simplicity and while others want more vibrancy. The submission buttons are clear to see.

**Desired Features (Green):** Users expressed interest in additional features like more languages, reporting tools for inappropriate posts, and the ability to include images.

Based on the analysis of user feedback and task performance, the app demonstrates varying degrees of effectiveness across tasks. Our quantitative analysis gave us upfront insights on what tasks succeeded and which ones failed. Task 2 clearly failed as no participant was able to use it. Some tasks, like navigating the map and survival guide, were praised for their simplicity and user-friendly design. Similarly, the overall flow of the app was seen as intuitive in parts like clear submission buttons. However, other tasks, such as "Search Location" and "Ask a Question," suffered from significant usability issues. The absence of an upvote option, unresponsive search bars, unclear icons, and confusing interfaces, decreased the app's effectiveness. Overall, while some tasks showcase the app's potential other tasks highlighted usability issues and unmet feature expectations- revealing the need for targeted improvements to enhance its effectiveness and usability.

### **III. Participation:**

1. **Jadyn**: Wrote the evaluation analysis and findings
2. **Anna**: Wrote the detailed method we use to evaluate the prototype. Wrote the protocol script. Conducted usability testing.
3. **Yuhan**: Initiated the high-fidelity prototype, created the Chatroom and Survival Guide task prototype, improved the prototype after evaluation
4. **Carey**: Created the Q&A Forum and Interactive Map prototype, improved the prototype after evaluation