

# Spur

## of the moment

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## Table of Contents

### [Problem/Solution Overview](#)

### [Needfinding](#)

#### [Interviews](#)

#### [Synthesis](#)

### [POVs and Experience Prototypes](#)

#### [Top 4 HMWs](#)

#### [Top 3 Solutions](#)

#### [Experience Prototypes](#)

### [Design Evolution](#)

#### [Final solution: Spur](#)

#### [Tasks](#)

#### [Design evolution visualization and rationale](#)

#### [Values in design](#)

### [Final prototype implementation](#)

#### [Technologies](#)

#### [Wizard of Oz techniques](#)

#### [Hard-coded techniques used](#)

### [Reflection & next steps](#)

#### [Learnings](#)

## Team Member Names and Roles

Hannah Cussen: Designer & Developer

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## Problem/Solution Overview

People struggle to overcome the activation energy barrier to discover, plan, and participate in something fulfilling in their free time, falling into the trap of infinite scrolling on social media instead. Spur is an all-in-one activity manager that lets you discover activities of interest (walk in the park, pickleball, painting, and much more), matches friends with shared interests, and helps make them happen. By encouraging time in the real world, connection with friends, and a zest for self-discovery, we hope to spur our users to enjoy life in the moment. Ultimately, we hope users spend little time swiping on our app and more time deriving fulfillment from IRL activities.

## Needfinding

### Interviews

We were interested in exploring “free time”, whether it is genuinely free, how it is balanced with work time, how people feel about it, and how different people conceive of it. In the first round, we went out to Tresidder and approached random strangers with interview requests. We showed them the consent form, gave them a heads up about the length of the conversation, and asked if they’d be comfortable helping us learn more about the idea of “free time.” We had a diverse group of four interviewees: Ayesha (guerilla market researcher), Jane (working mother), Erica (Jehoba’s witness minister, extreme user), and Jee (family man from Korea). In doing so, we were mindful of sampling across many age groups, gender identities, national origins, religious beliefs, socio-ethnic identities, and other key dimensions of diversity. We were flexible in our interviewing style, going in with prepared open-ended questions such as “What does your schedule look like on a typical day?” and “What do you like to do outside of work and family obligations?” but following up on any emotionally rich aspect mentioned in an answer. Insights we got through this were that instant communication alter expectations of productivity and muddy the freeness of free time, that time spent with family can also be viewed as free time because family is an extension of the self, and a culturally informed view that time is even more valuable than money and should be triaged. That said, we realized that folks with free time hanging out at Tresidder were unlikely to be those with very little free time. We also felt that personal motives negatively impacted interview quality, such as Ayesha concluding early to resume her research and Erica wanting to preach her message.

As we transitioned from our first to our second round of needfinding interviews, we pivoted from focusing on free time to focusing on people's personal priorities and how people recognize, realize, and normalize their idiosyncratic set of priorities.

For our second round of interviews, we continued to scout prospective participants at Tresidder, as we felt that it gave us access to an unbiased and diverse sample. We interviewed three individuals: Jacston (college student who self-identifies as extremely busy"), Mert (software engineer at Apple), and Kaiyu (Stanford Computer Science undergraduate). We followed the aforementioned protocols in conducting these interviews as well. This time, we did reuse some of our previous questions like "Can you walk us through a day in your life?", but we also searched deeper with questions like "Can you tell us about a time you had to pick between two conflicting/time-bound things and which one did you prioritize?"

## Synthesis

Most brainstorming techniques (sticky notes or an online sticky note emulator) are not accessible for the visually impaired. We understand that laying the ideas out in space allows for the eye to make different connections and see things that a strict ordered layout might not, but it is fundamentally inaccessible for screenreaders. Therefore, our empathy maps look a little different than most: they were created in a word processor. We still used the four quadrants, but typed our ideas in bulletpoints.

(raw empathy map below)

<p><b>SAY</b></p> <ul style="list-style-type: none"> <li>• [Check my email] too much... I really shouldn't do that"</li> <li>• [Checking email constantly is] counterproductive to concentration</li> <li>• Encouraged not to look at phones while at congregation</li> <li>• Head's down syndrome: people literally miss everything that's around them</li> <li>• [constant phone use is] detrimental to us</li> <li>• Priorities: Jehovah first, Others next then Yourself             <ul style="list-style-type: none"> <li>◦ J.O.Y.</li> </ul> </li> <li>• Sat down with brownie, thought about taking out phone, thought "no I've already checked my email"</li> <li>• Computer wouldn't close a tab, wouldn't go to the next thing, had to shut down device and start all over</li> <li>• When she was little, they didn't even have answering machines. If someone couldn't reach you, they just wouldn't reach you. The world kept turning             <ul style="list-style-type: none"> <li>◦ "We sent a man to the moon with that technology"</li> </ul> </li> <li>• "Some kids will even bring their phone into the shower"</li> <li>• "At least half of the time [being a minister] is spent learning. If you don't have anything in, you can't put anything out"</li> <li>• Had a conversation with a Jewish man about God and AI, discussed how god is love and that was most important, and at the end of the conversation the man told her "I just want you to know that as a neuroscientist, the beautiful picture of the place is more than anything you could say" and she found it very interesting</li> <li>• Container with rocks and sand:             <ul style="list-style-type: none"> <li>◦ Rocks are important things</li> <li>◦ Sand in first, then rocks don't fit</li> <li>◦ Rocks in first, sand fits around it</li> <li>◦ Husband says: always space for beer!</li> </ul> </li> </ul>	<p><b>DO</b></p> <ul style="list-style-type: none"> <li>• Checks email first thing in the morning and right before bed</li> <li>• Checks email 30 times a day</li> <li>• People watches (instead of phone use)</li> <li>• Gardens</li> <li>• Reads</li> <li>• Gives advice through the word of God</li> <li>• Goes door to door to speak with people about God</li> <li>• Gets frustrated when technology doesn't work effectively</li> <li>• Goes out to enjoy nature (and disconnectedness)</li> <li>• Travels for work, in a different place everyday</li> <li>• Uses technology to spread the word of God (online website, mailing list)</li> <li>• Stopped herself from checking her email when she sat down (before we approached her)</li> </ul>
<p><b>THINK</b></p> <ul style="list-style-type: none"> <li>• People are obsessed with technology</li> <li>• She spends too much time checking her email</li> <li>• Technology has caused people to lose skills and virtues</li> <li>• People are too reliant on technology</li> <li>• Technology has helped us save a lot of time</li> <li>• She is stuck in the loop of constant email checking because of work/communication needs</li> <li>• Modern technology is more frustrating than technology of the past</li> <li>• Technology (and interconnectedness) has made people more stressed</li> <li>• Most people prioritize themselves, not others (or God)</li> <li>• Learning/taking in the world is important</li> <li>• Conversations with people different from herself/who have different beliefs is interesting and enlightening</li> </ul>	<p><b>FEEL</b></p> <ul style="list-style-type: none"> <li>• Extremely frustrated when computer lags and needs to be restarted</li> <li>• Nostalgic for time before answering machines where, if someone didn't pick up, you just move on.</li> <li>• Grateful to have the chance to spread God's word</li> <li>• Passionate about connecting with people through her work as a minister</li> <li>• Sad when schools started letting kids use calculators</li> <li>• Shocked at the pervasiveness of constant communication (phone in the bathroom)</li> <li>• Tied to her phone (email specifically)</li> <li>• Wary of addictiveness of social medias</li> <li>• Enjoys and finds fulfillment in giving advice and helping others (through God), even when they are not also JW</li> <li>• Annoyed at how much people use their phones</li> <li>• She feels obligated to keep her phone with her, even during free time, because she would have to respond immediately if an emergency arose</li> </ul>

Contradiction - She mentioned that before answering machines, if you missed a call, it really wasn't a big deal. However, she also mentioned that she wanted to "kill" her devices when they don't work. The world keeps turning, but if I don't check my emails the moment I wake up it will STOP.

Contradiction: says time is more important, but still considers work to be number 1 priority

Interview 1: Ayesha

<p><b>SAY</b></p> <ul style="list-style-type: none"> <li>• On a day off, go the gym, run errands, sometimes have plans with friends or something, try to do more chill stuff around the house</li> <li>• Free time is self care time, planning trips time</li> <li>• "The first thing I do in the morning is pick up my phone, which I know is bad, but..."</li> <li>• "I need to do the [social media] detox again"</li> <li>• Works weekends and nights</li> <li>• Schedule revolves around son</li> </ul>	<p><b>DO</b></p> <ul style="list-style-type: none"> <li>• Tries to stay away from phone at night, and early in the morning as well</li> <li>• Plans trips with friends</li> <li>• During short breaks (15 minutes), she checks Instagram, then Facebook, then emails.</li> <li>• If she has a larger chunk of time off, she'll binge watch some TV             <ul style="list-style-type: none"> <li>◦ Marvel shows with her son</li> </ul> </li> <li>• Nightly skincare routine             <ul style="list-style-type: none"> <li>◦ Takes a long time</li> <li>◦ Doesn't use her phone when she does it</li> </ul> </li> <li>• Travels with a specific group of friends</li> <li>• Takes care of her pets, including the world's third largest tortoise</li> </ul>
<p><b>THINK</b></p> <ul style="list-style-type: none"> <li>• Checking Social Media is an unhealthy habit for her</li> </ul>	<p><b>FEEL</b></p> <ul style="list-style-type: none"> <li>• Exhausted from her commute on the day we interviewed her</li> </ul>

Interview 4: Jee

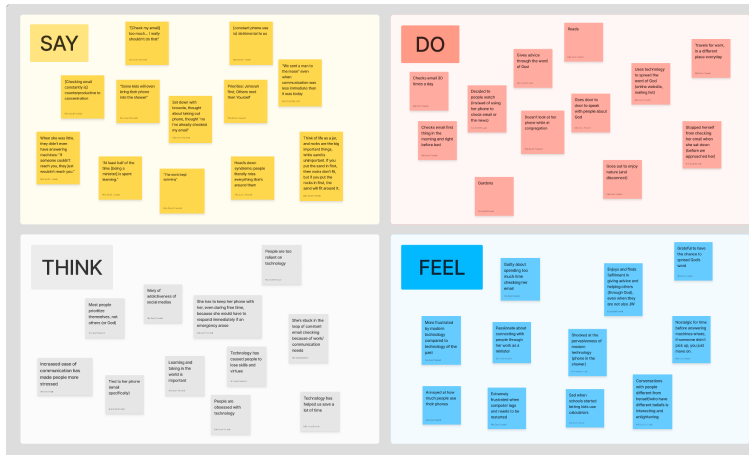
<p><b>SAY</b></p> <ul style="list-style-type: none"> <li>• own time was going (but this was for the company)</li> <li>• very scary when child got sick during pandemic</li> <li>• "we appreciate regular days"</li> <li>• not enough time to read, when son is 5 we will get that time back</li> <li>• Do you get breaks? No. It's just getting used to it. It's probably not good for my health</li> <li>• easier to enjoy vacation because Korea on holiday</li> <li>• does have to work on vacation</li> <li>• "I feel in control"</li> </ul>	<p><b>DO</b></p> <ul style="list-style-type: none"> <li>• meet parents every Sunday</li> <li>• Works in Pharma</li> <li>• check baseball stats after work</li> <li>• Tried baseball seriously back in elementary school up to freshman year of high school</li> <li>• Came to the US for an exchange program during high school</li> <li>• Go to gym for two hours every day after work</li> <li>• Engage in unofficial business dealings over golf Saturday morning</li> <li>• Goes to restaurants with family on the weekend</li> </ul>
<p><b>THINK</b></p> <ul style="list-style-type: none"> <li>• "own time" == time not in office</li> <li>• Notion of free time is more time with family than me time</li> <li>• Burnouts happen in cycles where you have work stress and then get on top of it and have a few light months and then are swamped with work again</li> <li>• Nice to completely forget work for a bit while on vacation</li> <li>• Balance between work life, relationships, and personal hobbies is important</li> <li>• It is okay for parents to need to sacrifice some free time and interests to raise their child, esp. in the early years</li> <li>• The pandemic took away a lot of things from a lot of people and reduced real free time (rather than increasing it)</li> <li>• There should be no work breaks because he gets paid for doing work</li> </ul>	<p><b>FEEL</b></p> <ul style="list-style-type: none"> <li>• regularity == good</li> <li>• Likes keeping himself busy because that helps with maintaining "alert condition"</li> <li>• May feel pressure as the masculine breadwinner to appear to have things sorted out</li> <li>• Content in things he has time for</li> <li>• Optimistic about getting time in the future for things he doesn't have time for right now</li> <li>• Feels responsibility and attachment towards his child, spouse, and parents)</li> <li>• Feels like he has grown since college by "getting used" to life as a full-time employee and a father</li> <li>• Feels in control of his schedule</li> <li>• Feels like he is representing himself in the interview so wants to be helpful (perhaps that invokes some social desirability response bias?)</li> <li>• Feels like he doesn't have enough time to read books (one of his favorites was Why Fish Don't Exist - by Lulu Miller)</li> <li>• Feels like he will have more free time after his son turns 5 or 6 and can be sent to after-school programs (hopefully)</li> </ul>

Interview 2

<p><b>SAY</b></p> <ul style="list-style-type: none"> <li>• In China we always think we have to do something meaningful, work &amp; study is meaningful</li> <li>• If you spend time with someone - time is most precious, more than money</li> <li>• 1st priority is work             <ul style="list-style-type: none"> <li>◦ every day's thing within the day, every week's thing within the week</li> <li>◦ Clear your work</li> </ul> </li> <li>• 2nd priority is to study with her daughter she started to read and write</li> <li>• 3rd priority self</li> <li>• enjoy walking with her daughter, enjoy the outdoors. Janice enjoys riding bicycle</li> <li>• Works on climate change, in an international company</li> <li>• Work from morning to evening, global company around the clock, motherhood</li> <li>• Kept to telling us to make an app teaching climate change to kids because nothing like that exists</li> </ul>	<p><b>DO</b></p> <ul style="list-style-type: none"> <li>• Child thinks that computer is only for work</li> <li>• Spending time with child every day, mostly to study</li> <li>• Spends most of her time working</li> <li>• First free time action is organizing work</li> </ul>
<p><b>THINK</b></p> <ul style="list-style-type: none"> <li>• Work and education are extremely important</li> <li>• People are undereducated about climate change</li> <li>• The outdoors provide refreshment from work and studying</li> <li>• People don't understand the environment enough</li> <li>• Being organized and completing your work brings a feeling of peace and completion</li> </ul>	<p><b>FEEL</b></p> <ul style="list-style-type: none"> <li>• Anxious her daughter is not learning at the right pace/not introduced to computers early enough</li> <li>• Excited to be talking to Stanford Students</li> <li>• Proud of her daughter's intelligence</li> <li>• Values her time outdoors with her daughter outdoors</li> <li>• Passionate about Climate Change and her daughter's education</li> </ul>

You can get money back but you can't get time.

Contradiction: says time is more important, but still considers work to be number 1 priority



We did create one empathy map for Erica, the Jehova's witness, to show in studio.

Through this process, we gleaned several specific but varied insights that our needfinding process ultimately boiled down to. We heard that people recognized that maximizing efficiency wasn't worth it if it traded off against happiness, but that they still felt regretful and unsatisfied about them "wasting time" (Mert, Kaiyu). We learnt from Jacston about the turmoil of deciding priorities, especially when there are direct clashes, through a story of when he needed to choose between a concert with his girlfriend and time-sensitive homework. Also, time management is often thought of as optimizing schedules to maximize free time so that you can do more so that you can get to what you really want; we learnt from Jee however that doing more is not necessary if one prioritizes. Finally, Often, free time is thought of as me time or time to oneself in Western cultures. We find this to not universally be the case and through our interviewees, especially those of Asian origins like Jane, people find it meaningful to dedicate their spare time to their family and kids.

# POVs and Experience Prototypes

Our initial POVs were too ambitious and tried to encompass the entirety of the person's identity and the conversation. We wanted to talk about Jee's baseball career in high school and Erica's story as a Jehova's witness and Mert's life as an engineer, but we clarified the spirit of the POVs and ended up with ones that were representative but also specific, so as to be useful starting points for the subsequent steps of the design exploration process.

Below are three POVs and accompanying selected HMWs for Erica, Mert, and Jee. HMWs that inspired the final selected HMWs are highlighted in yellow.

<p>We met... Erica, a Jehovah's Witness Minister who is constantly checking her email for work related reasons.</p>	<p>+HMW make email less transactional and more personal?</p>
<p>We were surprised to find... that she knows she doesn't receive any important communication after 5pm, but continues to check it frequently.</p>	<p>+HMW harness compulsion to check email to do something else?</p>
<p>We wonder if this means... checking her email is an ingrained habit, not a conscious choice</p>	<p>+HMW change what an inbox looks like to reduce stress?</p>
<p>It would be game-changing to... help her stay consistently conscious of her communication habits</p>	<p>+++ HMW leverage her distaste for modern technology to reduce her email use?</p>
	<p>+ HMW take the good of old work habits and infuse them into modern day communication?</p>

<p>We met... Mert, a software engineer who works a hybrid schedule and comes to tressider on his out-of-office days.</p>	<p>+HMW help him align his values with his actions?</p>
<p>We were surprised to find... he doesn't want to make his schedule more optimized for productivity, but he</p>	<p>+HMW help him be productive while he still feels like he's "wasting time"?</p>

<p>seemed embarrassed that it could be more productive.</p> <p>We wonder if this means... he is unhappy with how he spends his time.</p> <p>It would be game-changing to... help him feel content with the way he chooses to spend his time.</p>	++HMW reduce his embarrassment about how productive he is?
	+++HMW help him overcome societal pressure for productivity?
	+++HMW help him find "something better to do" with his "wasted" time?

<p>We met... Jee, a Korean family man who works 6-day weeks in pharma and wishes to get back into reading.</p> <p>We were surprised to find... that he hopes that when his infant son grows up , that will free his schedule for reading but wasn't confident of that happening or the timeline.</p> <p>We wonder if this means... that he copes with things he doesn't have time for by rationalizing that things will somehow change at unspecified points in the future.</p> <p>It would be game-changing to... help him identify and re-integrate long-lost hobbies back into his schedule.</p>	++ HMW make long-lost hobbies the activity of bonding between him and his family
	+++HMW help him keep him keep track of his long-term (personal) goals?
	+++ HMW remove the startup cost to begin an activity?
	++ HMW break up his long lost hobbies into manageable pieces?
	++HMW make parenting more like his long lost hobbies?
	+++ HMW we make reading an intergenerational activity?

We generated 10-20 HMWs per POV, but only show 5-6 here. To narrow down the HMWs, Each group member had an unlimited amount of plus signs to assign to each HMW they liked. After giving pluses, the group came together to discuss which ones had the most votes and which we wanted to proceed with. We adopted a similar process for narrowing down on solution ideas too. Following are the 4 HMWs we

selected and the ideas we generated for each. (We picked 4 rather than 3 after some deliberation because we felt sufficiently excited about each.) After the long lists of ideas, we will get to the ones we prototyped.

## Top 4 HMWs

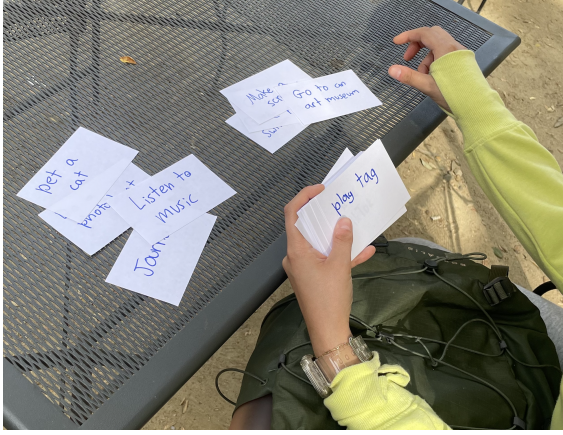
1. How might we leverage older models of human-technology relationships to reduce email use? (From Erica, the Jehoba's witness minister)
2. HMW encourage more positive/satisfactory activities in someone's free time? (from Mert, the Apple engineer)
3. HMW keep track of people's long-term (personal) goals? (from Jee, the Korean family man)
4. HMW make reading an intergenerational activity? (from Jee, the Korean family man)

## Top 3 Solutions

1. App like Tinder but you swipe right on activities of interest rather than love interests (From Mert to use his free time in a way that gives him more satisfaction)
2. Personal goal progress check-in (for Jee to develop a plan to get back into reading)
3. Making custom stories from people's camera rolls (for Jee to read stories about their own family with his young son)

## Experience Prototypes


Solution 1: App like Tinder but you swipe right on activities of interest rather than love interests

Assumption to test:	It's (1) easy and (2) enjoyable to categorize activities as "interesting" or "not interesting"
Explanation of experience prototype:	<p>Around 50 activities each written on their own notecard. We asked participants to put them in a pile representing something they'd be interested in doing and a pile representing something they wouldn't be interested in.</p> 
Participant:	Yecenia, a Stanford student at Tresidder.
Results:	<p>Both assumptions were confirmed. Participant said it was "pretty fun" and took no more than a few seconds to categorize each activity. Additional notes are that seeing the activity brought feelings (spikeball evoked memories of playing it as a child, driving evoked anxiety because she doesn't drive much). Expressed interest in the ability to rank activities from more to less interesting rather than a dichotomy.</p>

## Solution 2: Personal goal progress check-in

Assumption to test:	First, People want to fill out a form with their spare time. Second, People will feel aware afterwards.
Explanation of experience prototype:	Form with questions about how much free time they had, goals they had set, how they spent their free time, whether they made progress on their goals, etc.
Participant:	Caden, a GSB student at Coupa Cafe.
Results:	First assumption was confirmed with qualifier. While participant filled the form, she did report confusion around how free time was defined and that complexity could introduce friction. That said, she did fill the form. Second assumption was confirmed because she did report thinking more explicitly about her goal of making more connections and how she could continue making progress on it.

Solution 3: Making custom stories from people's camera rolls

<p>Assumption to test:</p>	<p>First, people's camera rolls contain good memories . Second, people are willing to share their camera roll with an outside party.</p>
<p>Explanation of experience prototype:</p>	<p>Asked participant whether we could look at his camera roll , how he felt about his images, and whether he had any pictures from recent weeks.</p> 
<p>Participant:</p>	<p>Raghav, Stanford student who had traveled this summer.</p>
<p>Results:</p>	<p>Both assumptions were confirmed with qualifiers. On the first, he felt good about his visual memories from his trips to India, Boston, and New York from the summer but also that he did not have any images from the previous couple weeks. On the second, he immediately handed his phone and when asked if he felt comfortable doing so, he said yes because he had nothing compromising on it.</p>

# Design Evolution

## Final solution: Spur

Description: An activity manager app where users can discover and plan meaningful IRL activities to spend their idle time.

Rationale for the selected solution, grounded in evidence

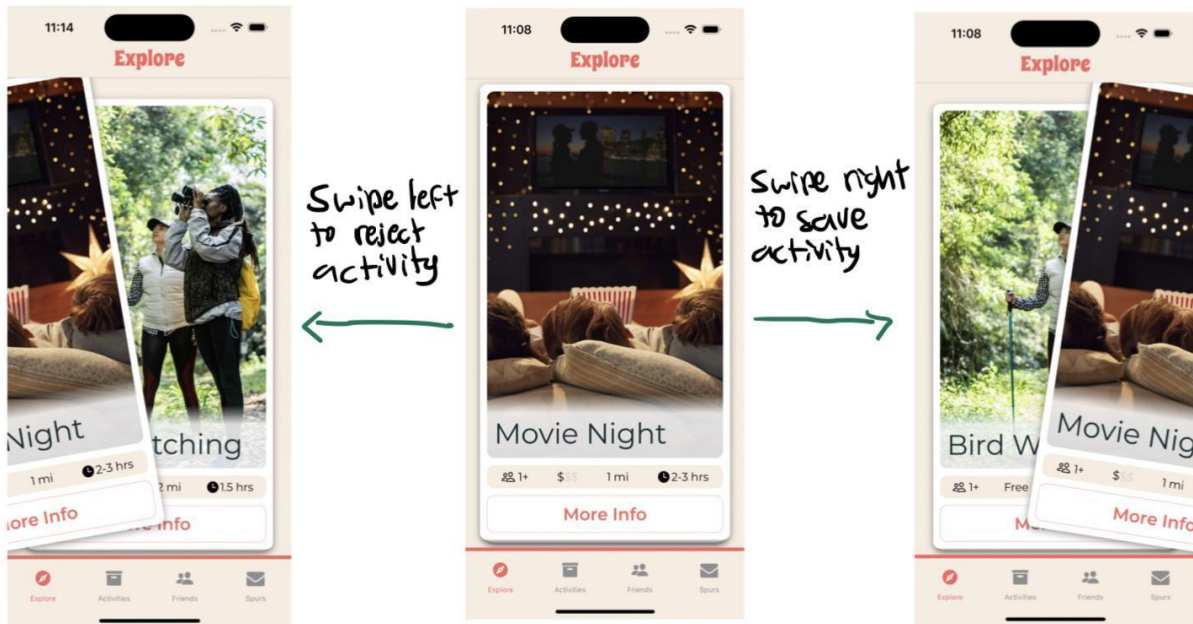
Our final solution draws inspiration from a collection of need-finding interviews we conducted. Primarily, Mert told us about the time he doodles away feeling embarrassed about him “wasting time.” He wasn’t sure how else he could spend his time without incurring, as he described it, the significant headache of identifying and planning alternate activities. Spur would lower the activation energy to find and plan activities for his free time, helping him spend time in ways that feel more meaningful to him. Also, Jee told us about the struggle to bridge his personal hobbies with his parental duties towards his young child. Spur can help him with making activities family-friendly, such as receiving suggestions on children’s books he could read with his young child. Finally, we recognized that both Erica and Jacston reported dissatisfaction with their addictive digital habits of constantly checking email and endlessly scrolling through social media. Spur can redirect those repetitive, habitual motions (such as swiping) in a controlled way to user exploration of more meaningful activities that are based in the real-world (as opposed to on the phone) and often involve friends (rather than being solitary).

Our final solution is also grounded in a variety of data points, trends, and insights we gathered from academia and the media. The average global user spends 2-3 hours daily on social media and this figure is only rising ([Global daily social media usage 2023 | Statista](#)). We also learned through academic literature that Smartphone dependency often leads to increased social isolation ([Which Comes First: Smartphone Dependency or Depression? | University of Arizona News](#)). Furthermore, We were inspired by the Dunbar’s number to choose existing friendships as the vehicle for inviting and being invited to do activities, helping maintain and strengthen those relationships.

# Tasks

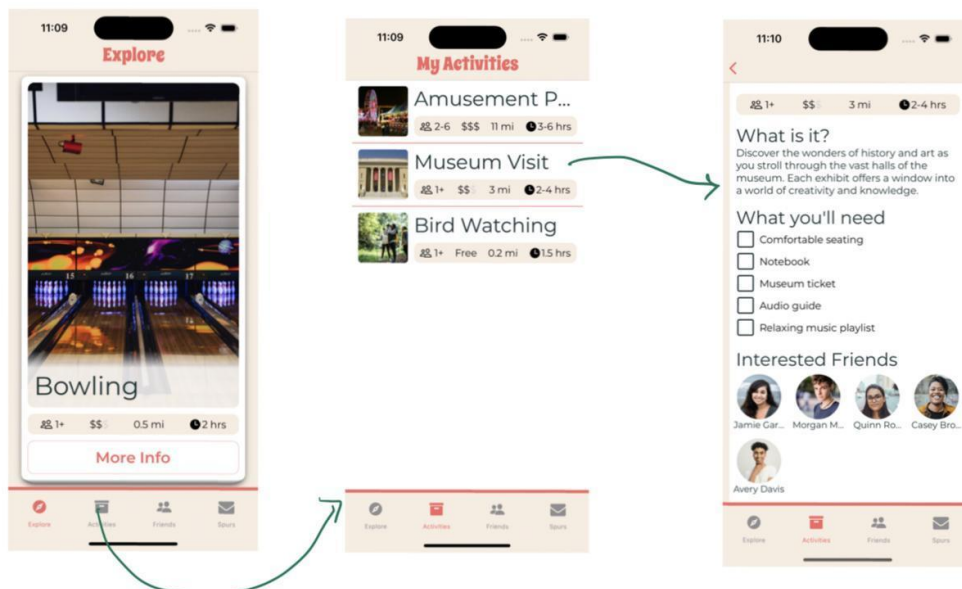
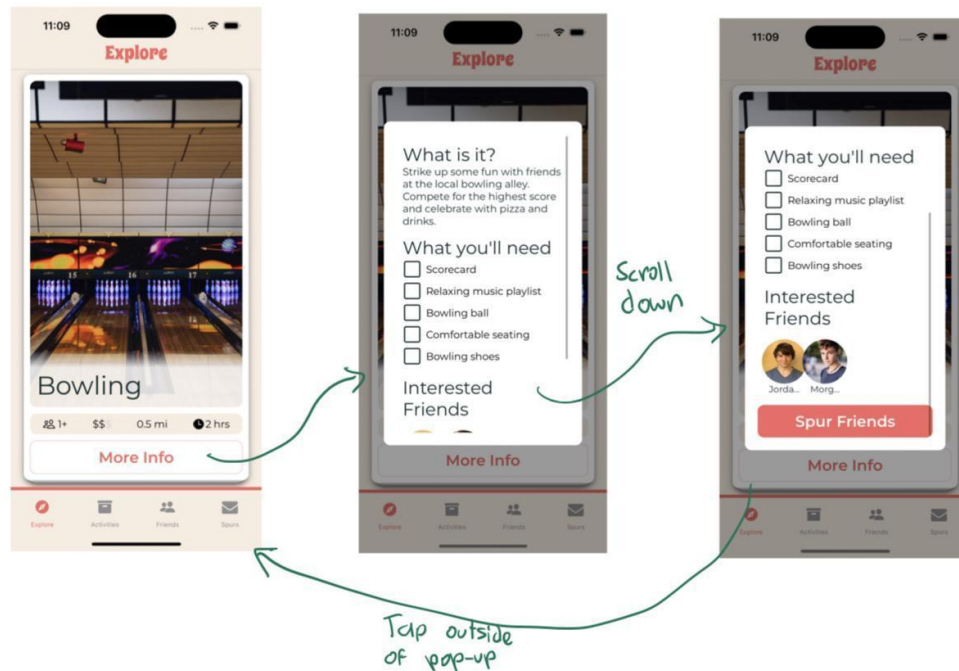
Simple Task: View Activities, Reject Them, or Save Them

Activity discovery is the core functionality of our app and is a prerequisite to performing any other tasks. Hence, we anticipate that looking through activity recommendations and either saving or discarding them will be the most commonly performed task on our app and which shall therefore be designed with ease and simplicity in mind. This task entails looking at the name and image of an activity, and either expressing potential interest, by swiping right, or dismissing it, by swiping left.



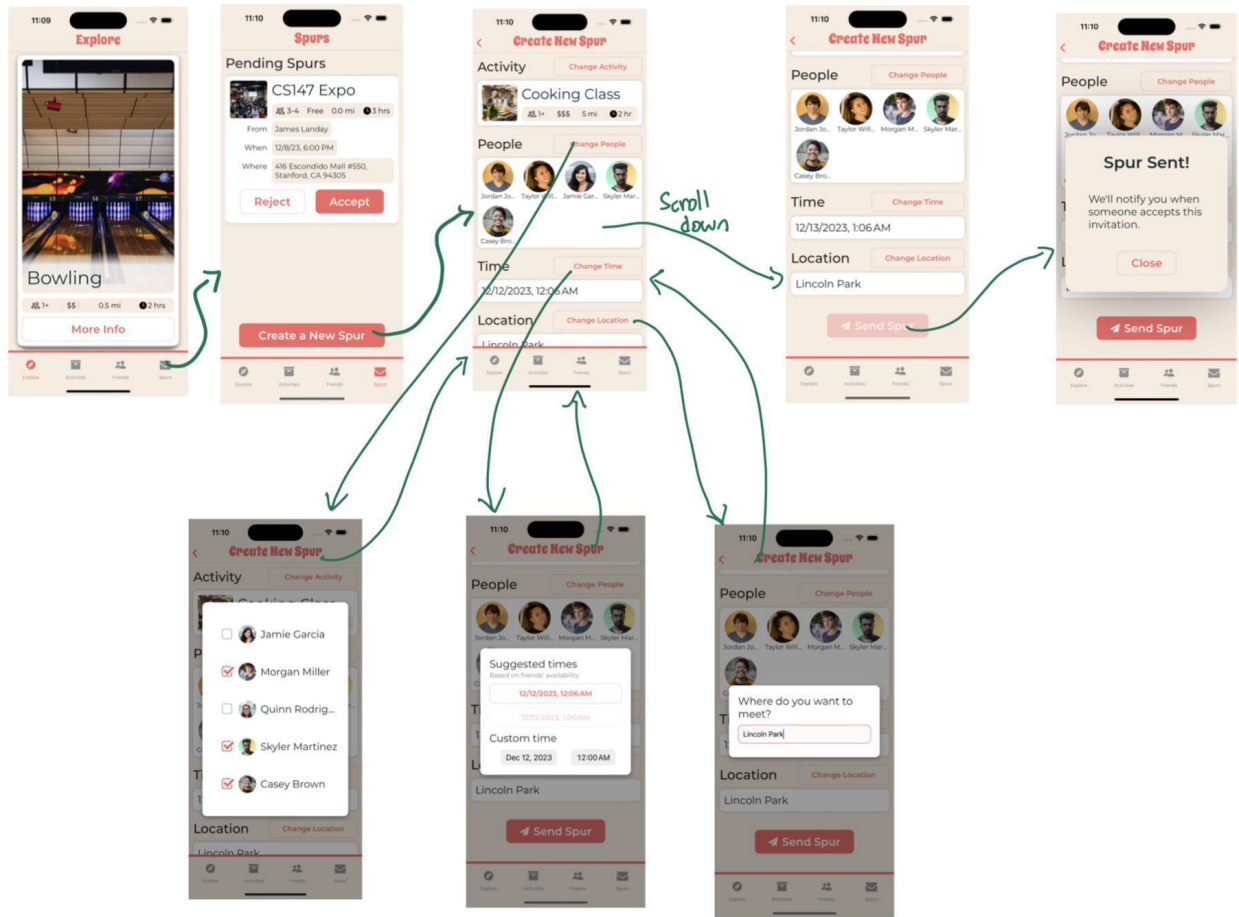
## Medium Task: Get more information about an activity or event

While discovering an activity is the first step, users need additional details to decide whether doing it is still appealing and feasible for them. We expect users to often check the details for an activity – though not always – as they respond to recommendations and make plans. To see more information while deciding to swipe left or right on an activity, the user taps the “More info” and scrolls. To see more info on an activity they’ve already saved, they go to the “Activities” tab then click on the activity they’re interested in.



## Complex Task: Coordinate an activity with other people

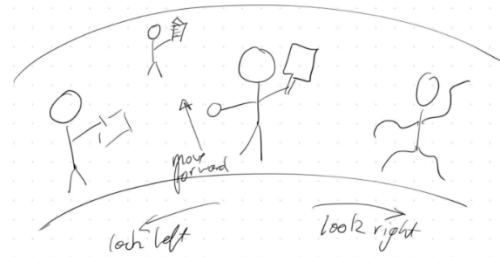
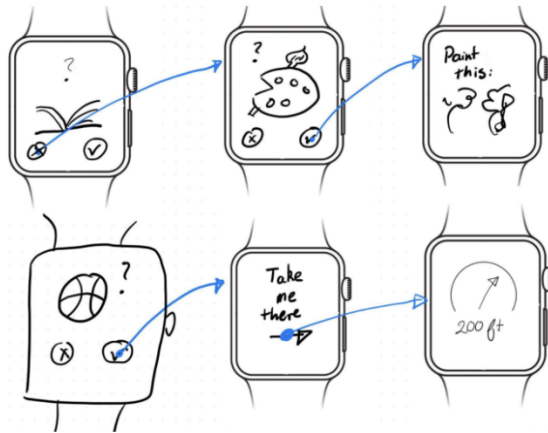
While we hope that users invite their friends Spur to join them in doing an activity via our app, this task is subsequent to the activity discovery process. We recognize that some users may choose to do activities individually or coordinate via other communication methods that bypass our invite functionality. Nevertheless, providing an in-app mechanism to try new things with existing friends is important. This task involves adding friends on Spur, viewing which friends are also interested in saved activities, sending invites to do activities together or responding to such invites, and using calendar integration to get suggestions on mutually convenient times.



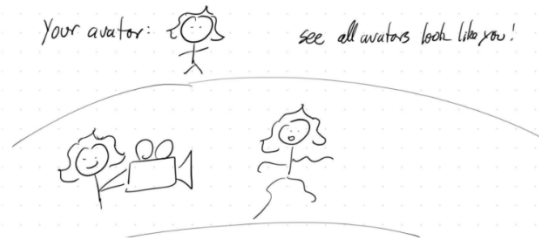
# Design evolution visualization and rationale

Based on our needfinding and experience prototype, we created sketches for many types of mediums, including wearables such as a watch and AR/VR.

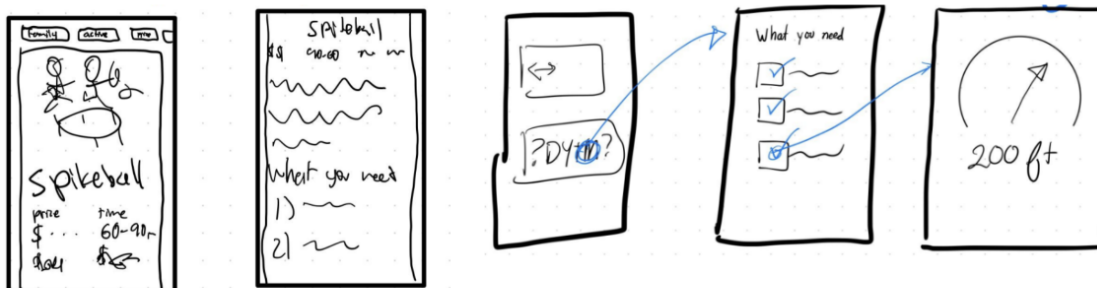
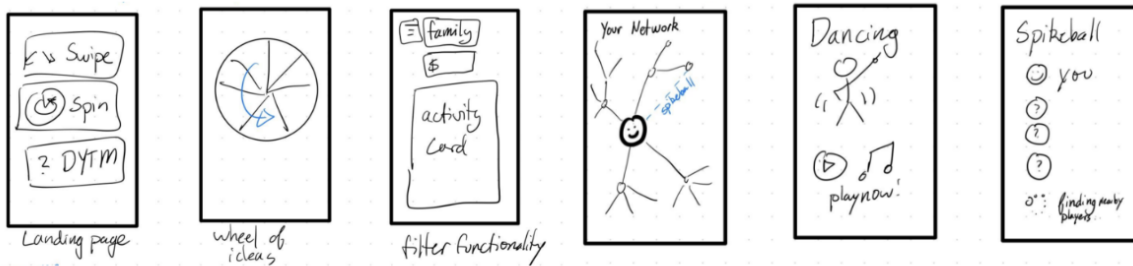
Sketches: VR / AR



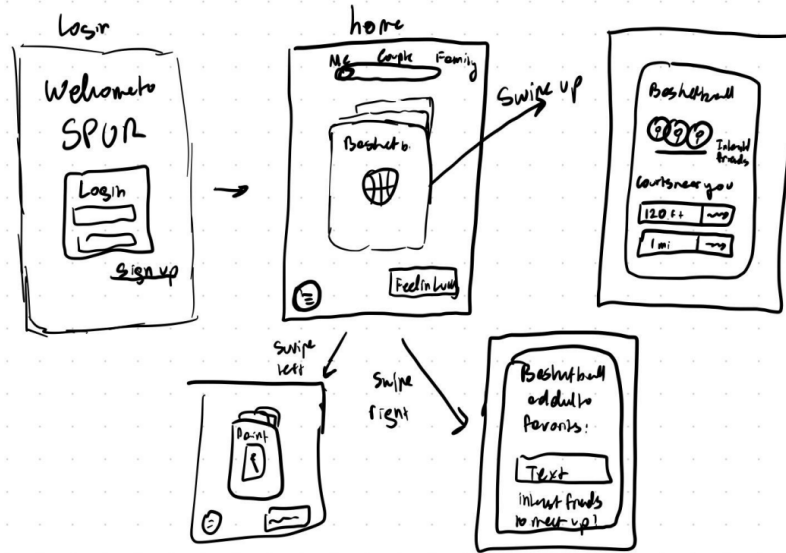
Sketches: VR / AR



However, based on our needfinding, we wanted to make it as easy as possible to start using our product with minimal activation energy. We opted to pursue a smartphone app. Here are original concept sketches for a native application.



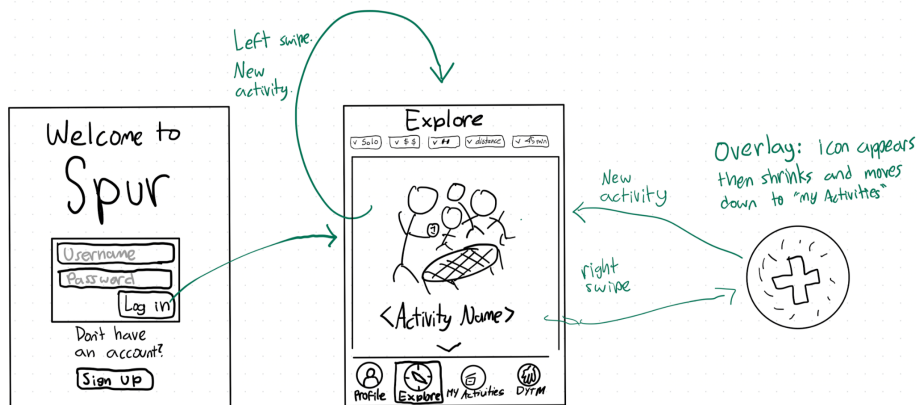
These sketches demonstrate a few different ideas; being able to visualize your social network of friends, doing activities within the app, and being given directions to a random activity without knowing what it is. The idea that we narrowed in on involved being presented with an activity, some information about that activity, and the choice to disregard it (by swiping left) or to show interest (by swiping right).



In this original concept, swiping right would take the user straight to a screen where they could invite their friends by pushing a button that would send a text to them. This was iterated upon for our lofi prototype, where swiping instead saved the activity which could be accessed on a list in a tab labeled "My Activities".

Lofi Prototype Simple Task Taskflow Wireframe:

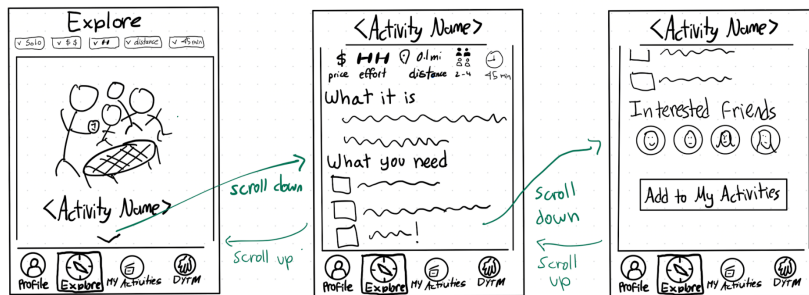
Taskflow 1:  
Find and save an activity that piques your interest



To view more information about an activity while deciding whether to swipe left or right, the user would scroll up and down. You can also tap on the "My Activities" tab and tap any activity from that page to see the same information.

Lofi Prototype Medium Task Taskflow Wireframe:

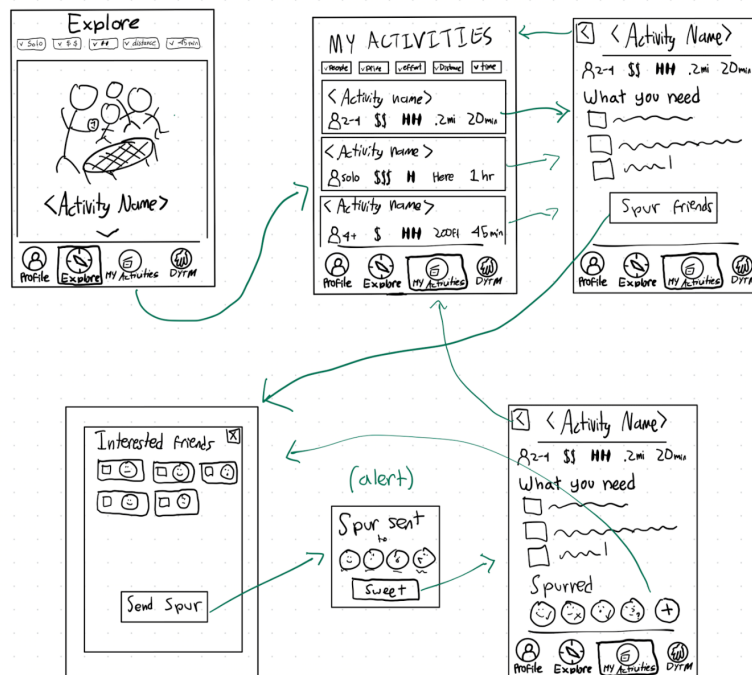
Taskflow 2:  
Learn more about  
an activity



Finally, in order to invite friends to do a specific activity, the user would have to navigate to the "My Activities" tab, click on an activity they were interested in, press a button on that activities page labeled "Spur friends," check off which friends they wanted to invite, and press a button labeled "Send spur." This also entails switching from using texts to communicate with friends to keeping all of the necessary communication within the app.

Lofi Prototype Complex Task Taskflow Wireframe:

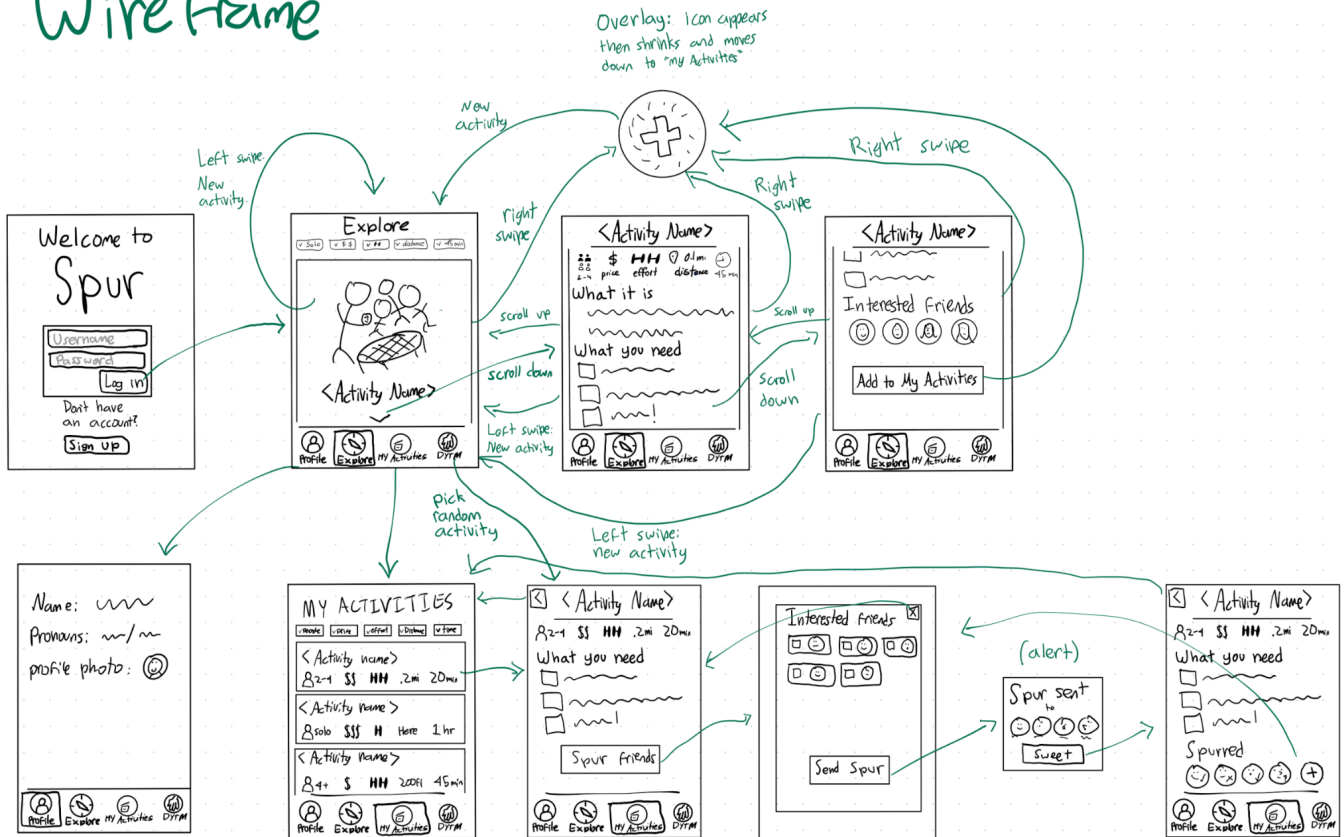
TaskFlow 3:  
Invite Friends to do  
a specific activity



Our Lofi prototype also included features not directly related to the three specific tasks. This includes a profile screen and a button in the tab navigator at the bottom of the screen labeled "DYTM," standing for "Do You Trust Me?," which would take the user to the page for a random activity.

Complete Lofi Prototype Wireframe:

# Wireframe



# All Components of Lo-Fi Prototype:

Welcome to Spur

Username

Password

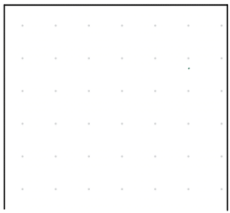
Log in

Don't have an account?

Sign up

Explore


Solo    \$ \$    #1    distance    45min



Profile    Explore    MY Activities    DTFM

MY ACTIVITIES

People    1014    effort    distance    time



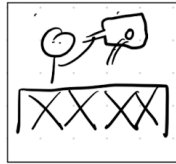
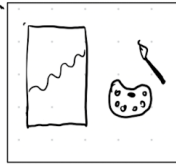
Profile    Explore    MY Activities    DTFM

Interested friends

Send Spur



<Activity Name>

R2-1 \$ \$ H H .2mi 20m

What you need

~~~~~  
 ~~~~~  
 ~~~~~

Profile    Explore    MY Activities    DTFM

What it is: ~~~~~

What you need

~~~~~  
 ~~~~~  
 ~~~~~

Interested Friends

Add to my activities

Profile    Explore    MY Activities    DTFM

Name: ~~~~~

Pronouns: ~/~

profile photo:

Profile    Explore    MY Activities    DTFM

Spur friends

Spurred

Spur sent to

Sweet



CORN MAZE

\$\$ H H @ 2.2m  
 price effort distance 2.2 20m

BOOK CLUB

\$ H @ 0.8m  
 price effort distance 0.8 1hr

PAINTING

\$\$ H H @ 0m  
 price effort distance 0 40m

Pickleball

\$ H H @ 0.1m  
 price effort distance 0.1 15m

Walk

@ H @ 300ft  
 price effort distance 1+ 10min

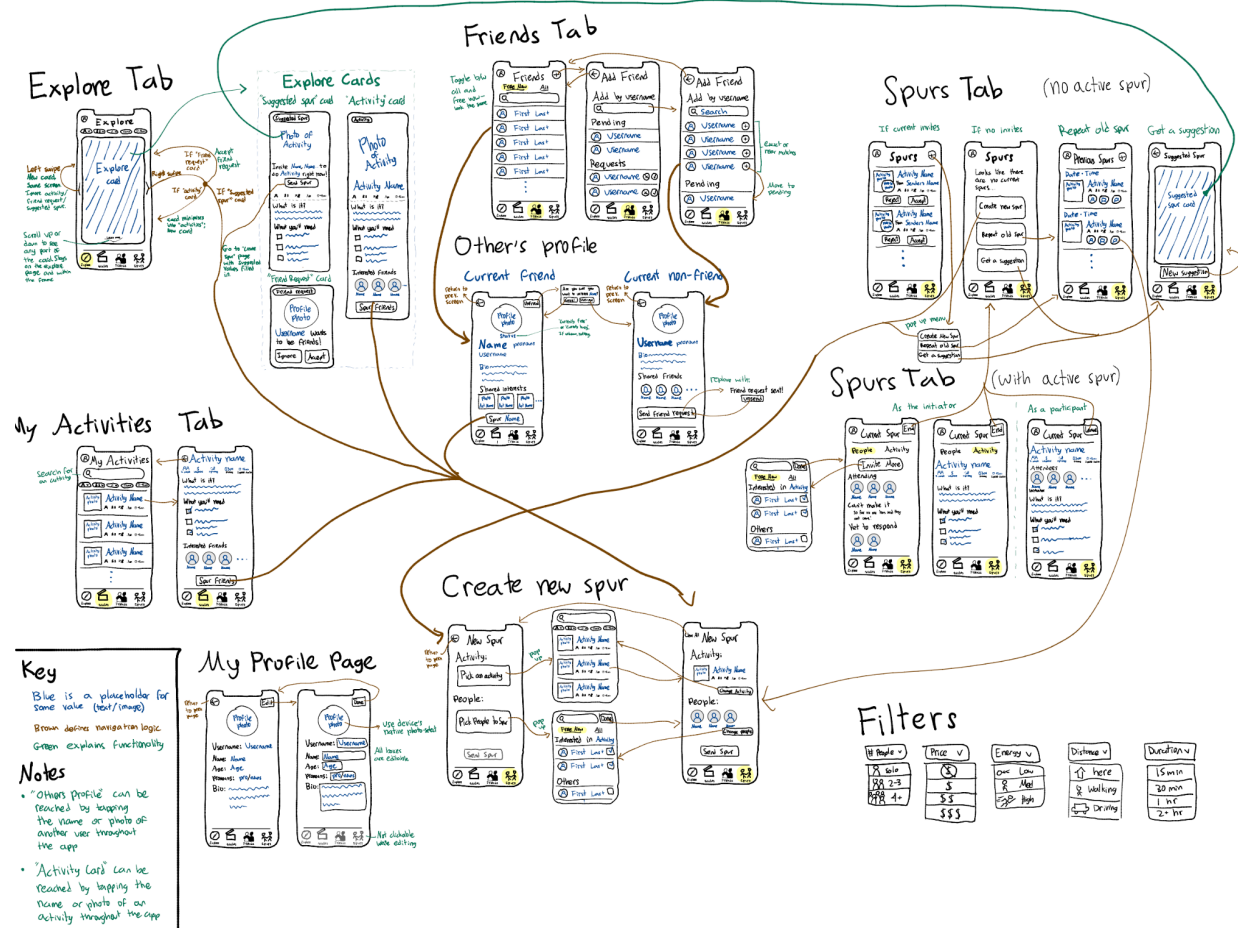
What you need

~~~~~  
 ~~~~~  
 ~~~~~

Profile    Explore    MY Activities    DTFM

In order to assess our lo-fi prototype, we recruited strangers to test it by interacting with the paper (tapping and scrolling) while we manipulated the paper to mimic the actions of the app. Here is the complete revised wireframe after testing.

### Medium-fi Prototype Complete Wireframe:



This wireframe involves three major changes based off of the user testing. Firstly, we removed the "DYTM" button. It greatly confused everyone who tapped on it, since a random activity (which they may not have previously seen) appeared on their screen with no explanation. We would still integrate the "randomized" functionality into future iteration as part of our next major change.

We added a navigation tab labeled "Spurs". To many users, it was not obvious that they had to first navigate to "My Activities" in order to invite people to do an activity. Additionally, we realized that we had failed to consider where the user would see their currently active invitations. We created the "Spurs" page to be the home for where you would receive invites, view previously sent invites, and send new invites. We call these invites "Spurs" as a way of branding our app and its functionality. To start

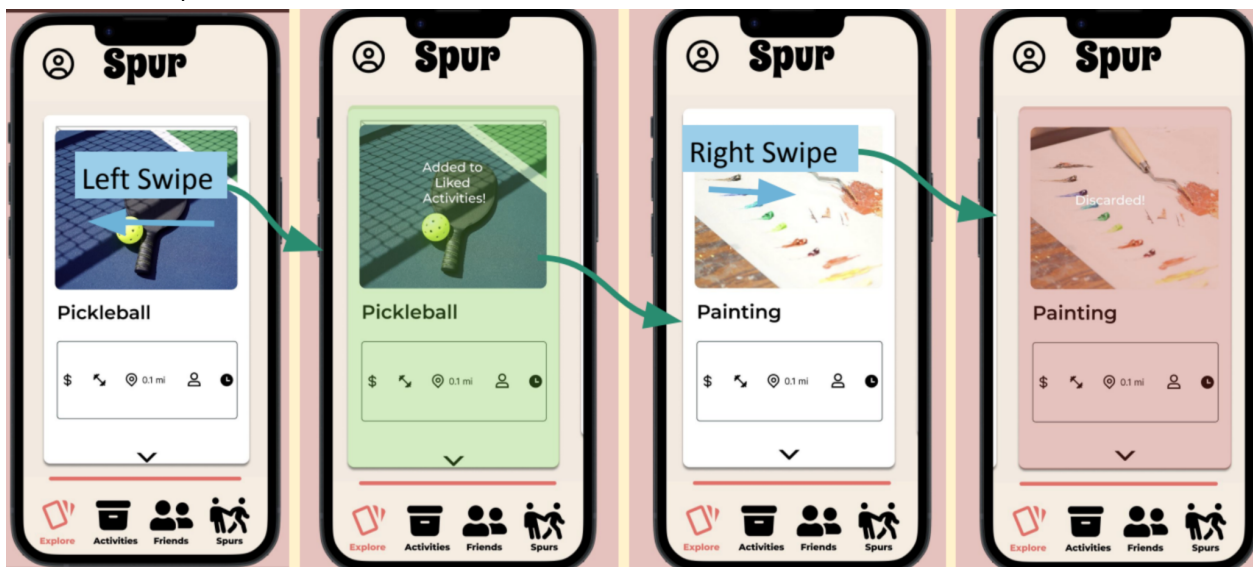
sending a spur, the user has an option to create a new spur, repeat an old spur, or to get a suggestion (much like the “DYTM” button). These changes are embodied in the complex task taskflow.

Medium-fi Prototype Complex Task Taskflow Wireframe:



Finally, we added a “Friends” tab to the navigation bar. Some users were uncomfortable and confused about how the app connected with friends and what we had in mind—being able to add friends manually in a similar way to social media—was not represented in the lo-fi prototype. However, since this did not directly relate to any of our three core tasks, we did not implement it in our medium-fi prototype.

The simple task taskflow remained relatively unchanged from the previous iteration, except that we used overlays on activities while swiping to indicate what the action of swiping entailed.

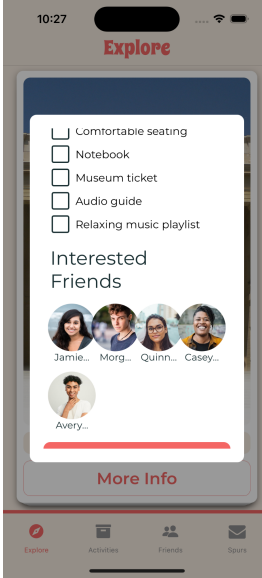


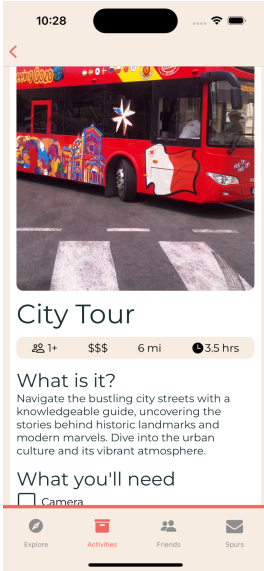
The medium-complexity task taskflow was also unchanged, with the same two taskflows for receiving more information about an activity—either scrolling down on the activity in the explore page or navigating to the page for the specific activity from the “Activities” tab.

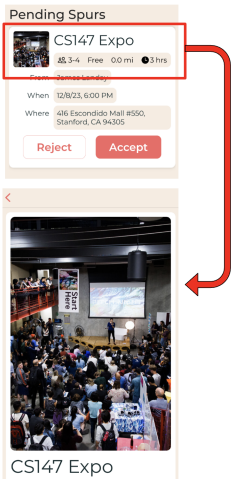
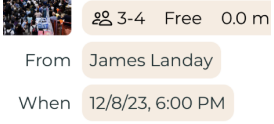
Medium-fi Prototype Simple Task Taskflow Wireframe:



To assess our medium-fi prototype, four classmates performed a heuristic evaluation on our app and alerted us to our app's potential shortcomings.

| Heuristic violation                                                                                                                                                                                             | Solution                                                                                                                                        | Hi-Fi Prototype                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>H3: User Control &amp; Freedom / Severity: 3</u><br/>When users click on the downward arrow to see more about an activity, the screen with more information about the activity has no back button.</p>    | <p>Put "More information" in a pop up which can be exited by tapping anywhere on the screen that isn't the pop up.</p>                          |  <p>The screenshot shows a mobile app interface titled 'Explore'. It features a list of activities with checkboxes: 'Comfortable seating', 'Notebook', 'Museum ticket', 'Audio guide', and 'Relaxing music playlist'. Below the list is a section titled 'Interested Friends' with circular profile pictures of four people: Jamie, Morg, Quinn, and Casey. At the bottom of the list is a 'More Info' button. The app's navigation bar at the very bottom includes icons for 'Explore', 'Activities', 'Friends', and 'Search'.</p> |
| <p><u>H3: User Control &amp; Freedom / Severity: 4</u><br/>Description: While viewing activities, and adding them or discarding them, it's possible to get "stuck" on a discarded screen.</p>                   | <p>This was a bug with the figma prototype, and is not an issue in our react-native app.</p>                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p><u>H3: User Control &amp; Freedom / Severity: 3</u><br/>Description: When users navigate through the suggested activities, there is no way for users to go back to an activity they have already viewed.</p> | <p>Decided not to address because we want to discourage users from second guessing themselves and keep the swiping casual and low pressure.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p><u>H7: Flexibility &amp; Efficiency of Use</u><br/>Description: Overall, there is</p>                                                                                                                        | <p>Changed the swiping directions to follow established user patterns.</p>                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

|                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                   |                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <p>some difficulty with the swiping mechanism, where it's a bit counterintuitive that users have to swipe left and right to see activities, and also swipe left or right to discard the activities or add them to liked activities.</p>                                               |                                                                                                                                                                                                                                   |                                                                                       |
| <p><u>H10: Help &amp; Documentation / Severity: 4</u><br/>Description: When a user first starts on the explore page, it's not very intuitive that the user has to swipe left and right to go through the activities. It's also not obvious how to add the activity or discard it.</p> | <p>We attempted to add a tutorial to our React Native app but unfortunately were not able to do so. In future iterations of this project, an onboarding tutorial would hopefully fix this issue.</p>                              |                                                                                       |
| <p><u>H12. Value Alignment &amp; Inclusion / Severity: 3</u><br/>Description: Unable to filter out activities that may not be accessible to a user.</p>                                                                                                                               | <p>Within the scope of the hi-fi prototype, we did not address this issue. However, in future iterations, an onboarding process could allow the user to clarify the types of activities they would be able to participate in.</p> |                                                                                       |
| <p><u>H3: User Control &amp; Freedom / Severity: 3</u><br/>Description: When a user clicks on the activity and additional information is provided there's no clear way to navigate back to the original activity.</p>                                                                 | <p>Added a clear "back" button in the top left.</p>                                                                                                                                                                               |  |

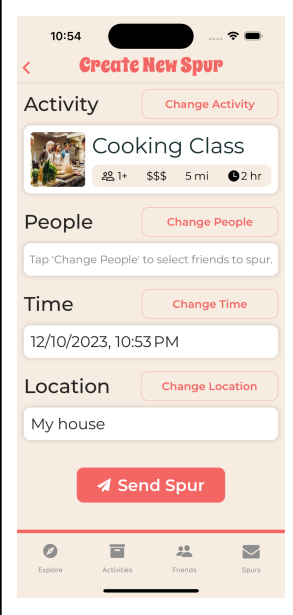
|                                                                                                                                                                                                                                                        |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>H4: Consistency &amp; Standards / Severity: 3</u></p> <p>Description: The activity tab is not centered in the middle of the page like how many other elements throughout the app are centered.</p>                                               | <p>Centered the activity on the page.</p>                                                            | <p>See above</p>                                                                                                                                                                                                                                                                                                                                   |
| <p><u>H5 Error prevention / Severity: 3</u></p> <p>Description: There is a checklist under "What you need", which the user will be able to check off items by tapping on the boxes. However, tapping on the screen will exit the description card.</p> | <p>Now it is possible to check the boxes without navigating anywhere else.</p>                       | <p>What you'll need</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Camera</li> <li><input checked="" type="checkbox"/> City map</li> <li><input checked="" type="checkbox"/> Comfortable shoes</li> <li><input type="checkbox"/> Water bottle</li> <li><input checked="" type="checkbox"/> Sports shoes</li> </ul> |
| <p><u>H1: Visibility of System Status / Severity: 3</u></p> <p>Description: Currently, users can't see additional information about invitations until after they accept it.</p>                                                                        | <p>Users can tap on the activity in the invitation to go to the activity page with full details.</p> |  <p>Pending Spurs</p> <p><b>CS147 Expo</b><br/>   3-4 Free 0.0 mi 3 hrs</p> <p>When 12/8/23, 6:00 PM<br/>   Where 416 Escanido Mall #550, Stanford, CA 94305</p> <p>Reject Accept</p> <p>CS147 Expo</p>                                                       |
| <p><u>H2: Match b/w System &amp; World / Severity: 3</u></p> <p>Description: Currently, this prototype has imprecise language on the "Spurs" page, with placeholders such as</p>                                                                       | <p>Change this language to "From"</p>                                                                |  <p>3-4 Free 0.0 m</p> <p>From James Landay</p> <p>When 12/8/23, 6:00 PM</p>                                                                                                                                                                                  |

|                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                   |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p>“Sender”.</p>                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                   |  |
| <p><u>H3: User Control &amp; Freedom / Severity: 3 / Found by: A, B, C, D</u><br/> Description: When users accept an activity, there’s a button at the top right that says “leave”. It’s unsure of whether this means the person is leaving the activity or whether the activity is currently in session, especially since that is the only way to navigate back from that page.</p> | <p>Removed the “Leave” button.</p>                                                                                                                                                |  |
| <p><u>H6 Recognition rather than recall / Severity: 3</u><br/> Description: After sending a Spur, on the “People” tab, there is only information about who accepted or rejected the invite, but no information on who has yet to make an action.</p>                                                                                                                                 | <p>You now see all invitees when reviewing the further information about a spur you sent. Once people have responded, they will be under an “attending” or “not going” label.</p> |  |
| <p><u>H3: User Control &amp; Freedom / Severity: 3 / Found by: A. B</u><br/> Description: When users create a spur, the top right button says “end”. Again, it’s a bit unclear as to what exactly this means.</p>                                                                                                                                                                    | <p>Removed the “End” button.</p>                                                                                                                                                  |  |
| <p><u>H6: Recognition not Recall / Severity: 3 / Found by: A, D</u><br/> Description: In the activity tab after creating a spur, there’s no activity title or picture.</p>                                                                                                                                                                                                           | <p>This was a figma bug and is not an issue with the hi-fi prototype.</p>                                                                                                         |  |

H3 User control and freedom / Severity: 4 / Found by: B

Description: When creating a new Spur, there is no option to exit the page or cancel, users can only progress by pressing "Send Spur"

There is now a button in the top left to navigate back to whatever page the user was on before (which may be explore, activities, or spurs). Additionally, they can navigate directly to any tab they choose.



# Values in design

## 1 Prioritize activities rather than networking

The function of Spur is primarily to help users discover and participate in meaningful activities in their idle time. This is because the motivation to do activities with your friends is greater than that of doing things with strangers. It is not to facilitate new connections, though that may organically happen in the process of greater community engagement. This value is reflected in our app in that invites can only be sent and received between people you have already friended on Spur through your contacts.

## 2 Limit addictive behaviours

Fundamentally, Spur serves as a counterpose to other phone apps which implement the infinite scroll and keep users hooked. We want to get users off our app and off their phone as expeditiously as possible. To that end, we offer only a finite stack of activities in any session for the user to swipe through, prodding them then to make those activities happen.

## 3 Privacy and Autonomy

Currently, people often need to ask others for suggestions on things they can do in the community and tag along with them to get involved due to a lack of pre-existing information. We want to allow people to engage in the activity discovery and planning process confidently and independently by giving them the information they need to get going. That said, we acknowledge that this value is in tension with the privacy of people who wish to keep their activities of interest partly private as friending someone on Spur makes activity matches visible.

### Tensions:

There was a tension between making the activity discovery process low-energy without making it so fun as to be addictive. We resolved that by implementing a cap on the size of the activity stack in an app session.

There remains a tension between facilitating connections between friends with shared activities of interests and keeping individual preferences private. It is possible for users to work around this simply by not adding any friends on Spur.

## Final prototype implementation

### Technologies

We broadly used three tools in the making of our final interactive high-fi prototype: React Native, Supabase, and Expo. We used React Native to build the app itself.

React Native's rich ecosystem of plugins, cross-platform behavior, and extensive online documentation made it easy to use and to debug when we got stuck. We were also able to leverage our previous knowledge of HTML and CSS to make styled screens. However, debugging was quite challenging due to ambiguous error messages. Also, technical issues in the gesture handler meant we did not have a component to implement both swiping and scrolling and needed to pivot our strategy.

We used Supabase for data storage to encapsulate, for instance, information and details about various activities. It allowed us to store data in tabular format, had helpful documentation on API, and had unlimited API requests so we could focus on making the app work rather than hitting limits. However, concurrency issues with Supabase when we tried to run multiple versions of the app from the same Supabase storage. Plus, Supabase was itself experiencing issues around the week of the final expo.

We used Expo as our development environment and for deployment. Expo was indispensable as it significantly simplified the app development process by allowing testing with live updates, intuitive user interface. However, we experienced some package versioning issues. Also, Expo Application Services seems to be buggy, and we were unable to deploy at the end due to issues for which there was no log or error message.

### Wizard of Oz techniques

We used the Wizard of Oz technique in a few instances to manually perform aspects of the user experience that seem fully implemented:

We used it to order activities to make it seem like activity discovery was personalized for what was relevant and of interest to the user. In a fully implemented version, we would show activities that are more accessible to the user (closer by, cheaper, etc.), in

line with other activities they have expressed interest in, and other trends we can pick up on using machine learning and recommendation algorithms.

We also manually reset the activity stack between user sessions, making it appear as if a new user was starting afresh with the activity discovery process. In a fully implemented version, we would not need to manually reset it ourselves and updates to the activity stack would persist beyond a session.

## Hard-coded techniques used

We hardcoded the list of friends a user had connected with on Spur. In a fully implemented version, the functionality to sync contacts and add friends would be working.

We hardcoded an invite for an activity for a friend. In a fully implemented version, the functionality to receive and send invites to friends would work dynamically.

We hardcoded the list of activities the user would be displayed and associated details. In a fully implemented version, we would source activities from users, from online sources, and other data streams. We would personalize associated details using the user's location and sources like Eventbrite and Google Events.

## Reflection & next steps

### Learnings

We learnt a considerable amount this quarter throughout the design exploration process: via lectures, in studio, and in going through the steps. Our three main takeaways were as follows:-

1 Leveraging Laziness: Given our studio theme was “Unintentional Good”, the notion of activation energy was bubbling up in our team conversations from the start. We wanted to make a beneficial action easier to do for a user. Going from this nebulous thought to concretely applying it to help people use what are typically addictive gestures (swiping left and right) to get off the phone was an exercise in operating within existing user paradigms to turn a negative into a positive.

2 Immersive Interviews: The fairly broad and probing need-finding interviews at the start gave us a chance to really sit down and understand the lives of people in the context of our problem domain. We realized that the interviews didn't need to be

shaped around an idea we already had but could just be an opportunity for us to learn about the experiences, challenges, contexts, and aspirations of our interviewees through anecdotes, facts, and feelings. This made the process more revealing and less algorithmic.

3 Concept Video: As students of technical disciplines, it was refreshing that we could use narrative in our design process to craft a preliminary narrative for our app that would tell a story of what we were hoping to build without getting stuck in the nitty gritty of UX design itself. It allowed us to be imaginative, open-minded, and ambitious, and ultimately gave us guidance as we later made specific feature and UI decisions.

## Future Work

We hope to explore the following possibilities:

User-Generated Activities: While we pool diverse sources to come up with activity suggestions, users may have their own, unique activities to contribute to the Spur community (such as “making rangolis”, a cultural Indian tradition). It would be good to allow users to contribute activities which could then, after a review process, start getting displayed to other users.

Virtual Reality Simulations: While we gamify activity discovery considerably and seek to offer relevant information about activities, another layer of information would be for the user to experience doing the activity for themselves in VR.

All in all, we greatly enjoyed building Spur and are grateful to Dr. James Landay (instructor) and Nancy Hoang (TA) for their mentorship this quarter.