DESIGN CHECK-IN

INJURY TRACKING FOR AMATEUR ATHLETES || SECTION AC

TASKS

TASK 1: KEEPING TRACK OF RECENT WORKOUTS TO REFLECT ON OWN ATHLETIC ABILITY AND GOALS

Ash is a 13-year old who wanted to get more involved at his middle school, so he joined the cross country team. At his first day of practice, he hears his new teammates talking about their workouts. Giovanni says he's happy he ran his first 6 minute mile, and his teammates congratulate him. Ash realizes he doesn't know how long it takes him to run a mile, and he feels left out. He decides to start keeping track of his time and distance for each workout, so he can develop a better understanding of his abilities and talk to his teammates about his own running progress. Now that he can analyze his pace and mileage, he feels like he is better integrated with his team and can form more specific goals for his season.

TASK 2: DECIDING WHETHER TO GET TREATMENT FOR ATHLETIC PAIN

Misty is a senior oceanography major at the University of Washington who has been running on and off throughout high school and college. She likes how it helps her set a productive tone for the day. Over the last week, they've done a couple of particularly intense hill workouts, and Misty has noticed a twinge of pain in her ankle that sticks around for the first few miles of each run. She continues running over the next few days, but eventually her ankle starts hurting for several hours after the workout ends. She considers her options and decides to have a professional examine her ankle.

TASK 3: SEEKING INFORMATION ABOUT AN INJURY ONCE PAIN DEVELOPS

Brock is a 24 year-old graduate student who has been a regular runner for the past year. He usually runs three or four times per week in the mornings at the IMA before heading into lab. Though he is always careful to follow best practices for injury prevention, such as stretching regularly and not over-exerting himself, he begins to develop pain along his shins. Having not experienced this before, Brock realizes that he needs to seek more information to better understand this pain. After doing some research, he finds that he likely has shin splints and decides to follow the suggestion of taking a break from running.

TASK 4: EDUCATING SELF ABOUT POTENTIAL INJURIES AND PREVENTION STRATEGIES

Jessie is a University of Washington freshman who recently began running regularly. She was a competitive swimmer in high school, so she understands how important correct strengthening and stretching techniques are for injury prevention. However, being new to running, she doesn't know what she should be doing to prevent injuries related to her new exercise routine. After learning about common injuries in runners, Jessie finds strengthening and stretching exercises for injury prevention to incorporate into her warm-up and cool-down.

TASK 5: SHARING ADVICE ABOUT RUNNING/WALKING

James is the captain of his high school track and cross country teams. He considers himself to be knowledgeable about fitness, particularly as it relates to distance running, so he enjoys helping new athletes at the beginning of the season. His love of distance running and his desire to help his fellow

teammates has even earned him the nickname, "Good Guy James." At the beginning of the cross country season, he develops workout routines and finds routes which he believes will be helpful for new runners. He shares this information with his team and many of the freshmen are thankful for the warm welcome.

TASK 6: SHARING ACTIVITY HISTORY WITH A PROFESSIONAL

Meowth is a 34-year old runner seeing a physical therapist for pain in their lower legs. Meowth has never been to physical therapy before, but this is the most severe pain they have experienced in their amateur running career. During their first visit, the physical therapist needs to gather information to diagnose the injury. She asks Meowth information about their activity history, including what exercises they has been doing and how long their lower legs have been hurting, which they shares gladly. The physical therapist uses all of this information to create a treatment plan, helping Meowth recover as quickly as possible.
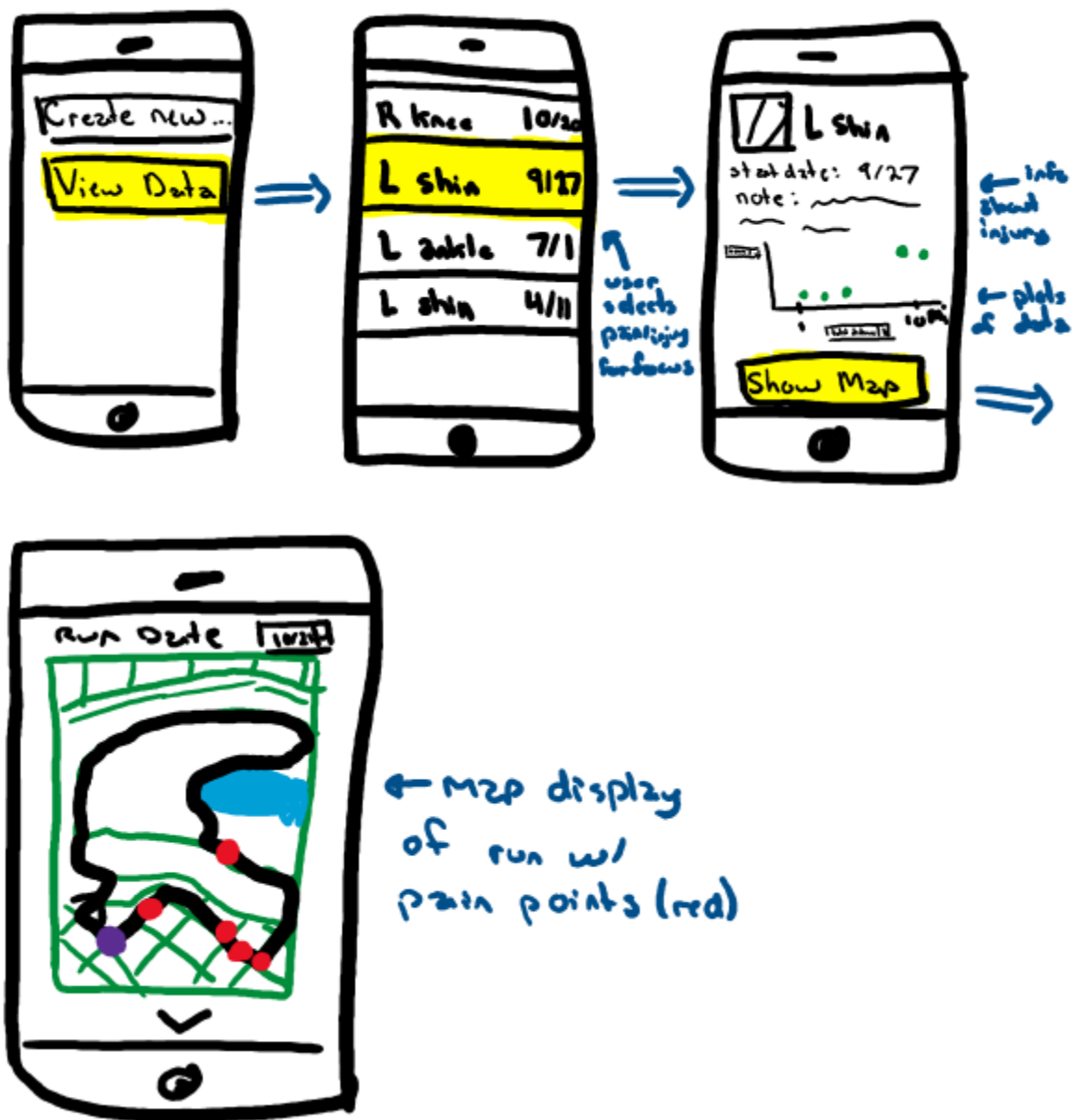
Design A is a phone/wearable app that tracks workout data and allows for a user to easily input instances of pain. The app records relevant workout information such as route, mileage, pace, and elevation. When a user encounters some pain, they can very easily identify on the app where on their body the pain occurred. The app will then keep track of the location and frequency of occurrence for a particular pain point and will be able to present this data in an aesthetic, graphical display.
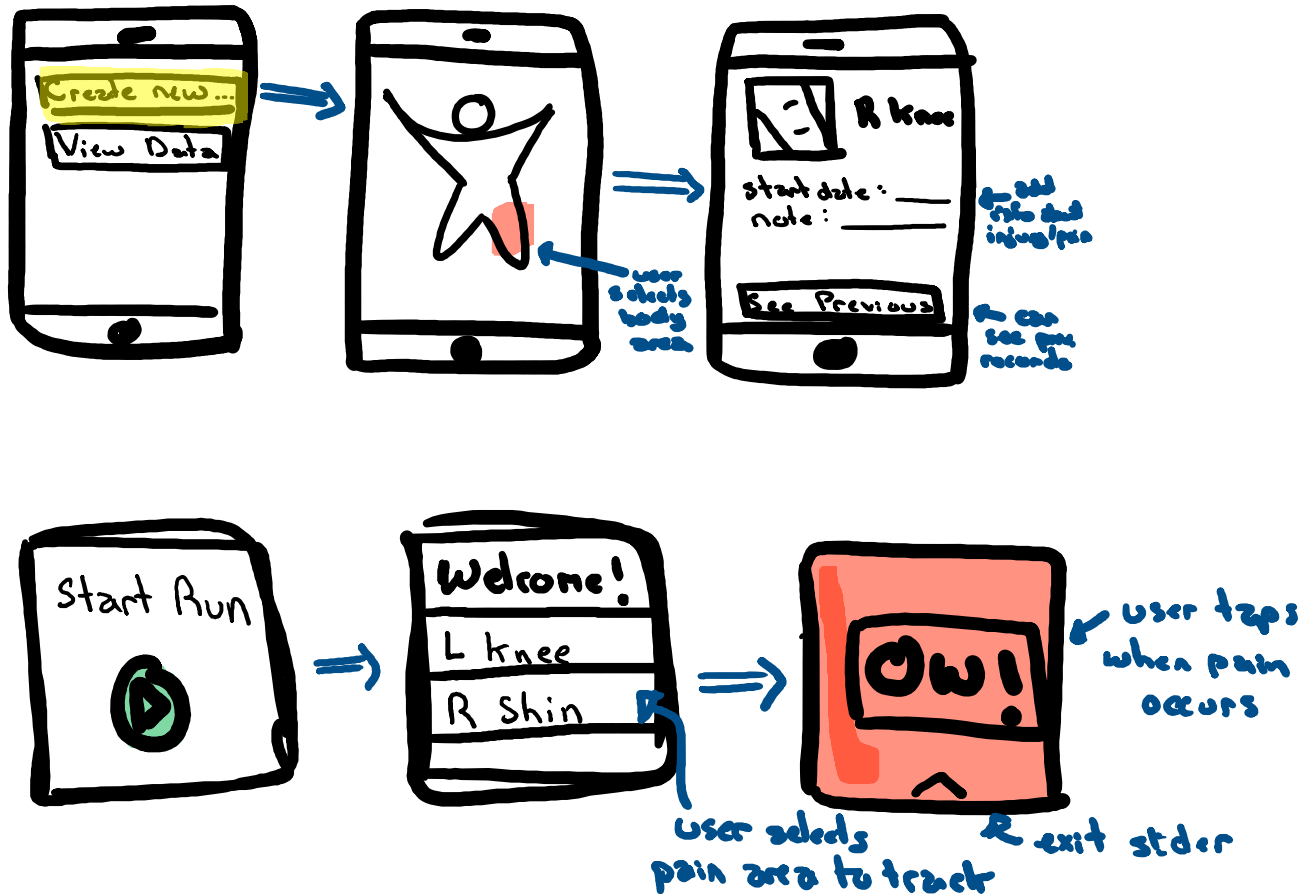
Task 1: User starts application before going on run, takes their phone with them. Phone will use GPS and map data to record elevation, distance, and pace for the workout. Each workout is saved and can be looked at later. User can record moments of pain without needing to unlock device so the interaction is easy (should be performed multiple times per workout). These moments are displayed on the map of the workout and are stored as part of the workout data for later reflection.

Task 2: Because user is inputting pain, the app can use simple heuristics to suggest that they reduce their activity or seek treatment when they are recording too many moments of pain in a time period or set of workouts.

Screen 1: Create new... / View Data

Screen 2: R knee 10/2d / L shin 9/27 / L ankle 7/1 / L shin 4/11 — user selects pain log for review

Screen 3: L shin / start date: 9/27 / note: ___ / Show Map — info about injury — plots of data

Screen 4: Run Date [info] / ← map display of run w/ pain points (red)

Task 3: Because the user is recording workout information, the app can help them determine what type of injury they may have and offer suggestions for self-treatment of the injury or workout modifications. It can also prompt the user in real-time, alerting them if they are doing an activity (e.g. running too fast) that typically leads to pain.

Task 6: If a user is visiting a health care provider in relation to their pain/potential injury, they can show the application to the health care provider. There is a special analysis page/module that shows insights and recent trends in pain, including how pain relates to current pace, elevation change, recent mileage,

etc. These insights allow the healthcare provider to have more complete information on the pain/injury compared to that received when the athlete provides information through free recall alone.

Design B is a web app that combines 3rd party app data with user-reported pain to provide insightful tips and workout suggestions. By pulling workout data from 3rd party workout apps such as Strava and Fitbit, this web app is able to focus on providing insights into correlations between workout and pain. It also avoids the trap of users not wanting to maintain too many workout-tracking apps at the same time. After combining the workout data with the pain data, the web app displays its findings in an "insights" and "reports" page that provides additional details into the injuries and how to best treat them going forward.

Task 1: App pulls workout data from Strava/Fitbit/other. User can manually input pain data; both workout and pain data are easily accessible and viewable in the app. The app displays the information (e.g. via graphs/charts) in a way that can be easily understood.
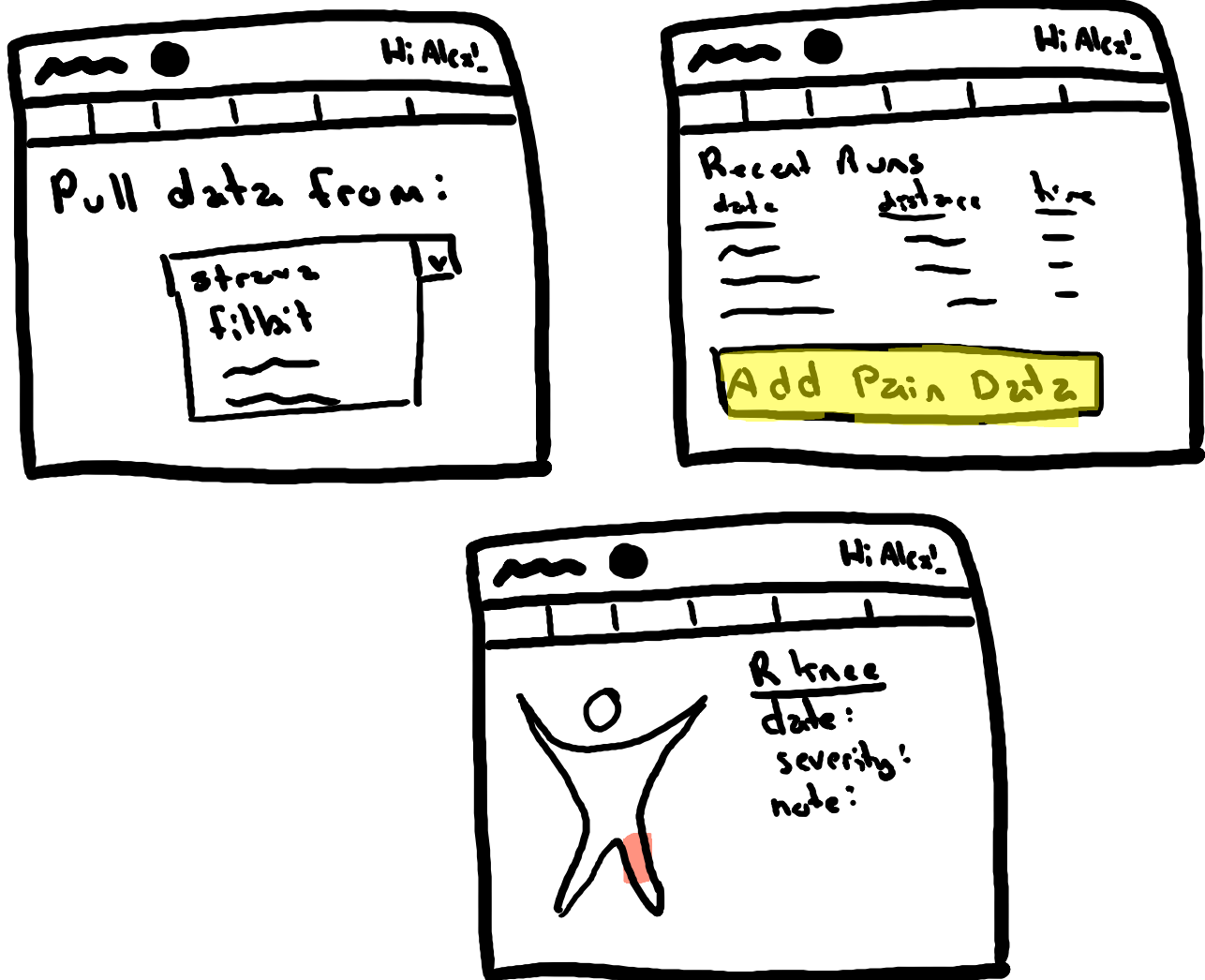
Task 3: The app has a "insights" page that graphs the information pulled, showing potential correlations between pain and workout data (e.g. mileage and pain severity). The user can then use this information to inform them about potential causes of their pain.

Task 4: The "insights" page would also contain suggestions on websites for further information or exercises based on the graphs.
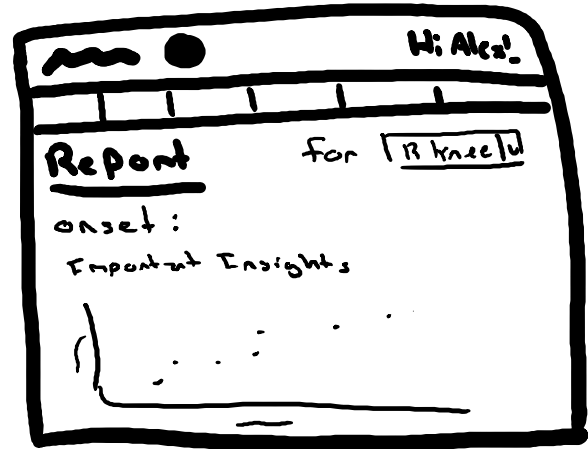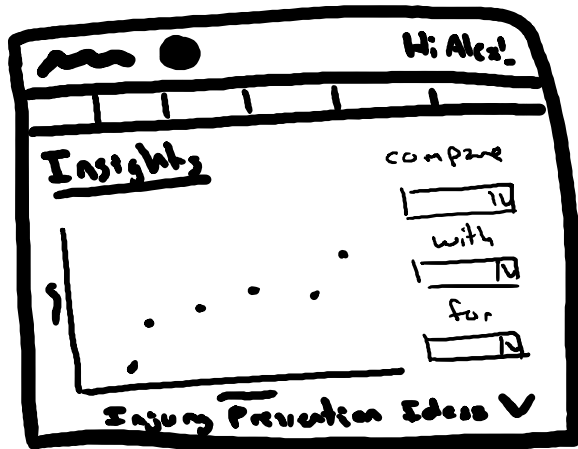

Task 6: The "reports" page of the application shows a summary of each injury, providing information that would be relevant to a healthcare provider such as when the pain first appeared, the average and peak severity of the pain, and any notable correlations with other factors such as elevation change, mileage, and pace.

Design C is a cross-platform phone and web app that allows for a user to interact in a support group with other athletes who are dealing with the same injury. Together, they are able to share their own stories of how they are dealing with the recovery and provide advice and resources for others who may be going through the same injury. The app will also allow users to input basic workout data such as distance and time ran so that others in the same support group will be able to encourage each other to overcome their injuries. In a group environment, users will be able to share and receive workout advice and pain management techniques from each other.
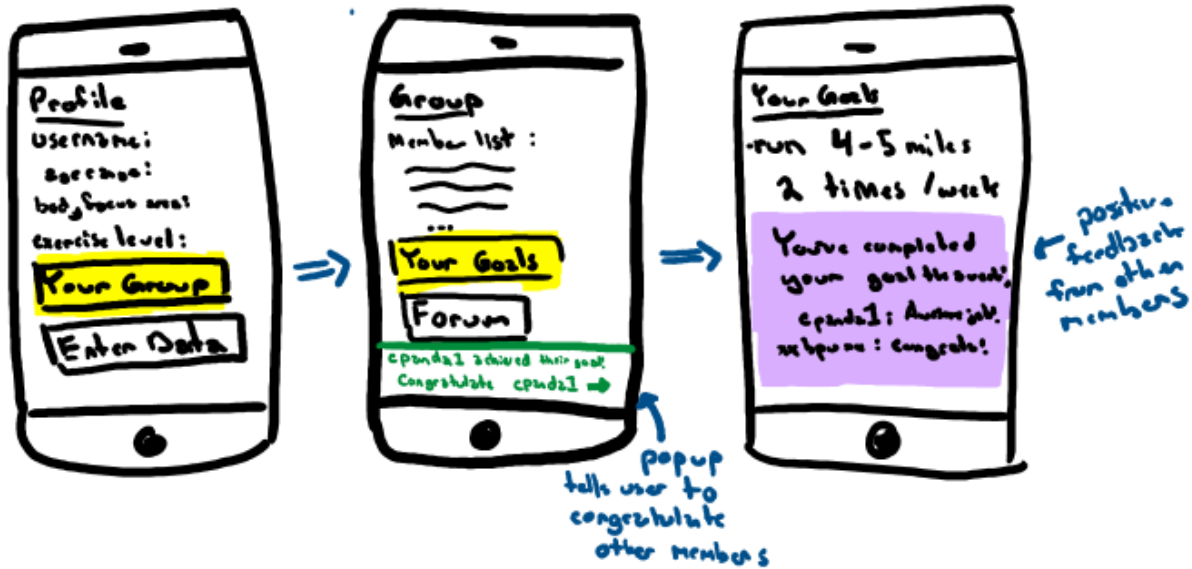
Task 1: User enters their workouts manually, but is prompted for only very basic information (distance and time). This information is shared with their "prevention group", a group of athletes whom they have joined for support in dealing with a similar injury or athletic worry (such as recovering after an ankle injury, chronic knee pain, new runners trying to prevent overuse injuries, etc.). Their recent workouts are tracked, so they can see their progress and how they compare to the other members of their prevention group.
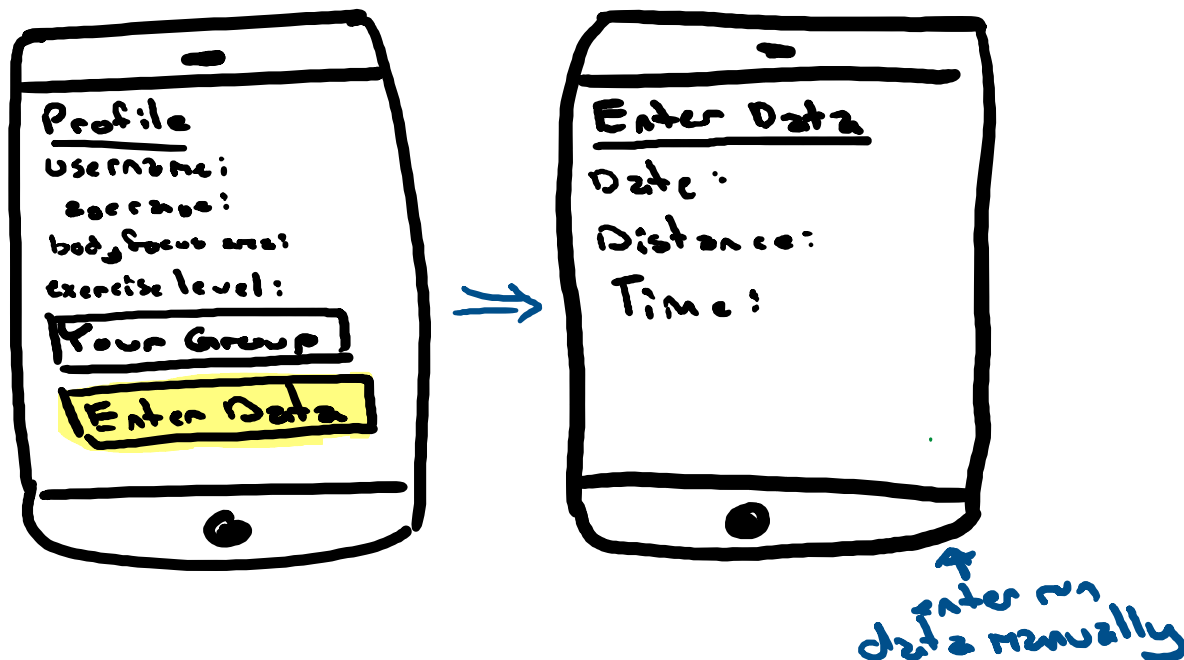
Task 3: There are "prevention groups" that users can join based around certain activities/injuries, where users can ask for information about injuries, and suggest/find exercises or workouts to prevent further pain. The group resources are a curated source of further information.

Task 4: Each prevention group has a set of group resources that are curated by the application based on the type of prevention group (ex. A prevention group for long distance runners concerned about knee injuries would have a different set of resources compared to a group of sprinters concerned about preventing ankle sprains).

Profile
Username:
age range:
body focus area:
exercise level:
Your Group
Enter Data

⇒

Group
Member list :
...
Your Goals
Forum
cpndz1 achieved their goal!
Congratulate cpnd21 ➡

popup tells user to congratulate other members

⇒

Your Goals
-run 4-5 miles
2 times /week
You've completed your goal this week!
cpnd21: Awesome job.
xxbpune : Congrats!

positive feedback from other members

Task 5: Members of a prevention group can engage with the others in a chat at their group homepage. This allows them to both share and receive workout advice and pain management techniques. Notifications are also provided when group members meet their goals for the week in order to make the chat room a positive and encouraging space.

Group
Member list :
...
Your Goals
Forum
cpnd21 achieved their goal!
Congratulate cpnd21 ➡

⇒

Forum
Pinned Resources

Talk to Group

curated resources

member conversations