Final Report - CS 147

Mango
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*Make Group Travel Planning Easy*

Problem and Solution Overview

Travel is a passion for people from all over the globe. The majority of leisure trips occur with two or more people. However, planning for travel in a group can be difficult, frustrating and inefficient. Through user interviews, we discovered early on that this was a huge pain point for many travel lovers. We heard stories of plans getting lost between complicated email threads, shared docs and even phone and in-person conversations. We created a mobile web application that helps alleviate this pain. Mango enables users to collaborate on trip planning with their fellow travelers and easily plan, brainstorm and track logistics and activities for a given trip. It also serves as a lightweight digital scrapbook for reminiscing about past trips.

Tasks & Final Interface Scenarios

Task #1 (Simple): Sign-in and add trip details
The first task enables the user to sign in and view past trips, as well as create a new trip to plan. When the user adds a new trip, he or she can name the trip, add the trip's location (places autocomplete through the Google Maps API), specify start and end dates, and add any relevant details.
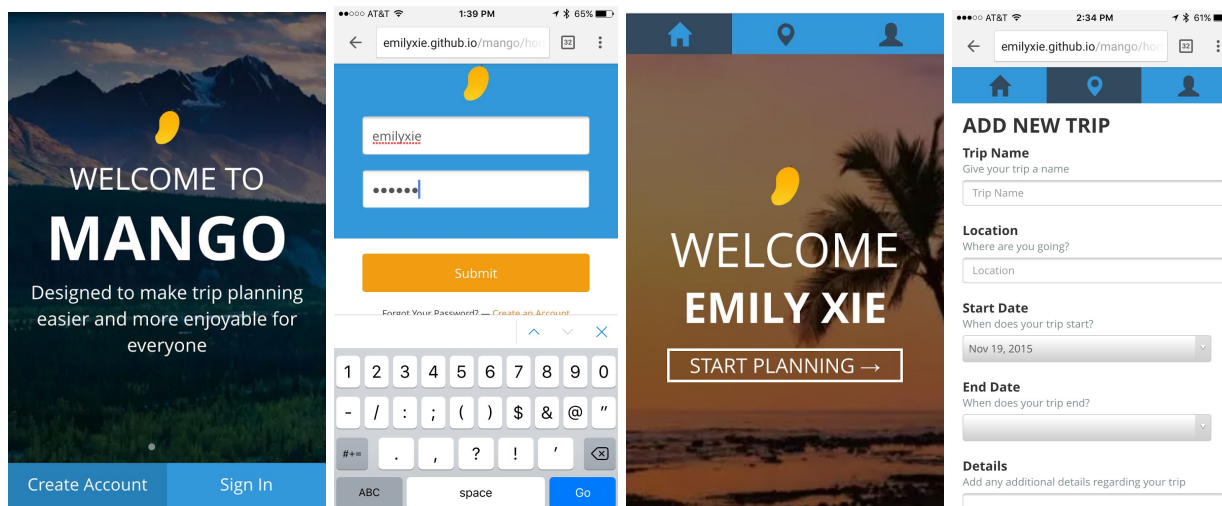

Task #2 (moderate): Invite friends
The second task allows the user to invite his or her travel companions. These travel companions are the user's friends within the Mango platform.
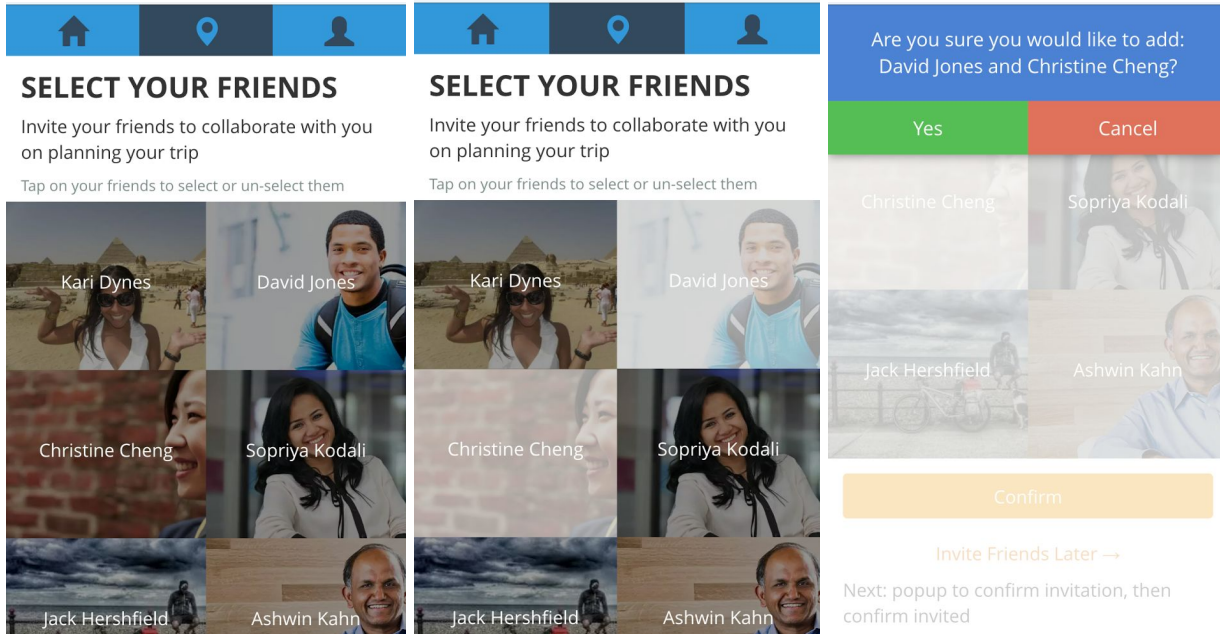
Task #3 (complex): Brainstorm activities, add to calendar and view itinerary

The third task is the most complex, as it enables the various travelers on a trip to brainstorm activities for each day of the trip and add them to the trip itinerary in chronological format, complete with details, location and photos.
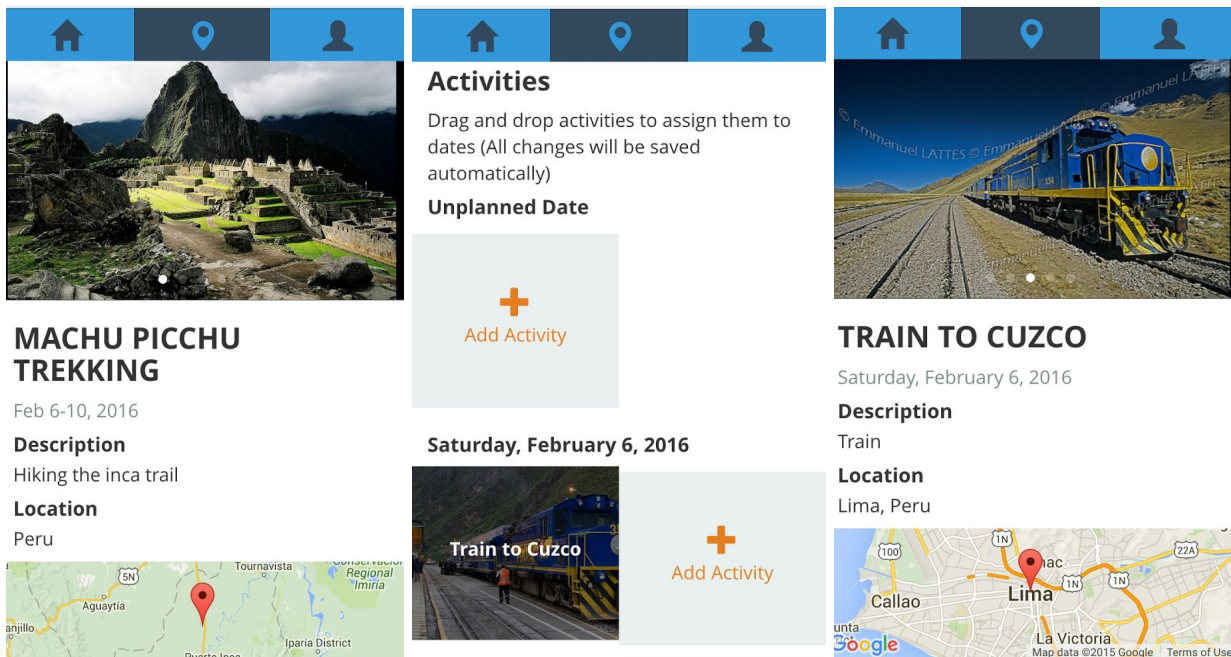

We developed these tasks after some iteration, deciding these were the most essential to travel planning in a group as we will discuss in the next section.

Design Evolution

Our design changed dramatically throughout the course of the past few weeks. We initially envisioned a more complex website, where users could vote on ideas, drag and drop activities onto calendar pages, sign in with Google and automatically add friends from their Gmail account. We opted for a more simplified and mobile-first design for the final prototype based on suggestions from the instructors.

In our low-fi prototype, we broke our initial trip set-up task into several pages. Users complained that this was confusing; specifically they did not understand what the "people" page signified.
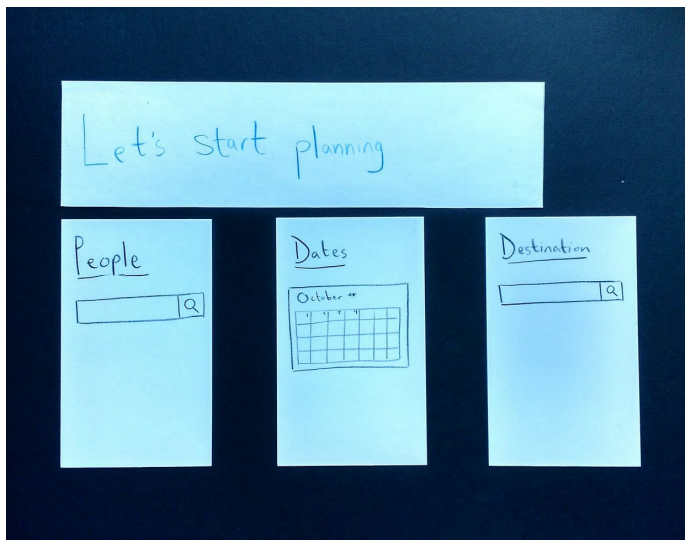

By the medium-fi prototype, we changed to a google sign-in page and a desktop-focused trip planning page (without the confusing "people" screen, and with dates and destinations combined on one screen).
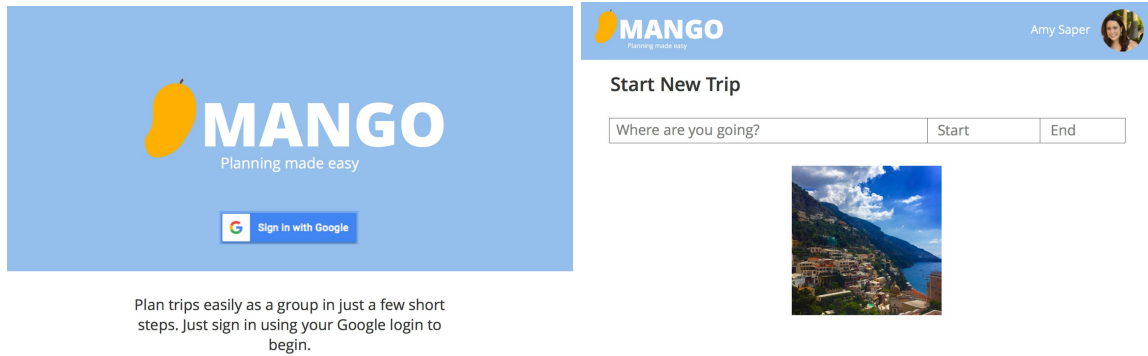
For the high-fi prototype, we pivoted to a mobile web-app, with a simple log-in feature and a mobile web optimized trip setup page. We added many more photos throughout the web app as well, per feedback from previous iterations.
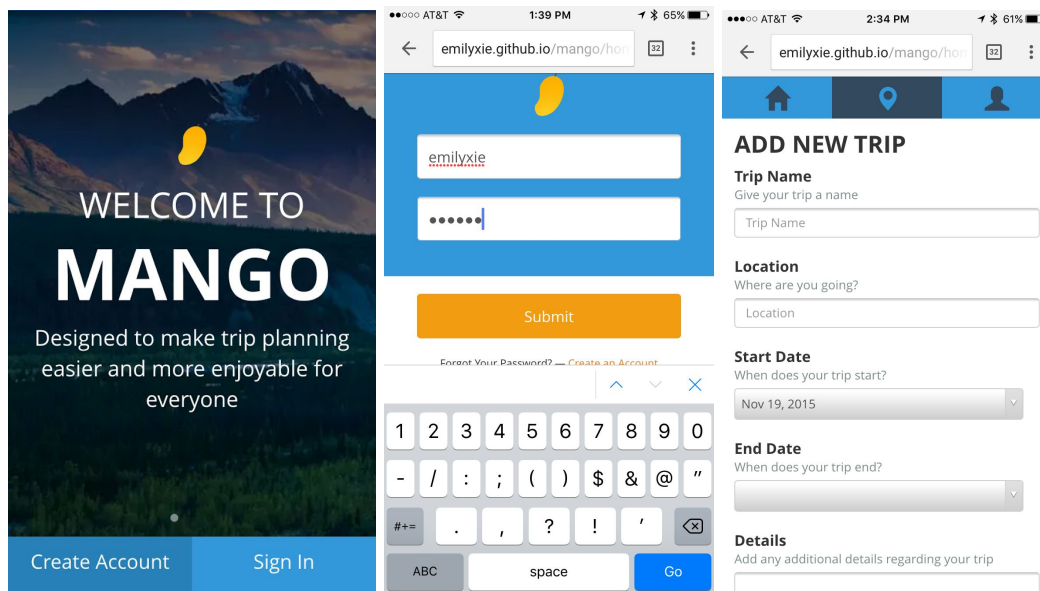

Our second task of inviting friends was omitted completely in our low-fi prototype. By the medium-fi prototype, we had created a desktop-optimized website to invite friends to join the trip, but didn't provide much signal or editing power to the user about the status of the invitations being sent.
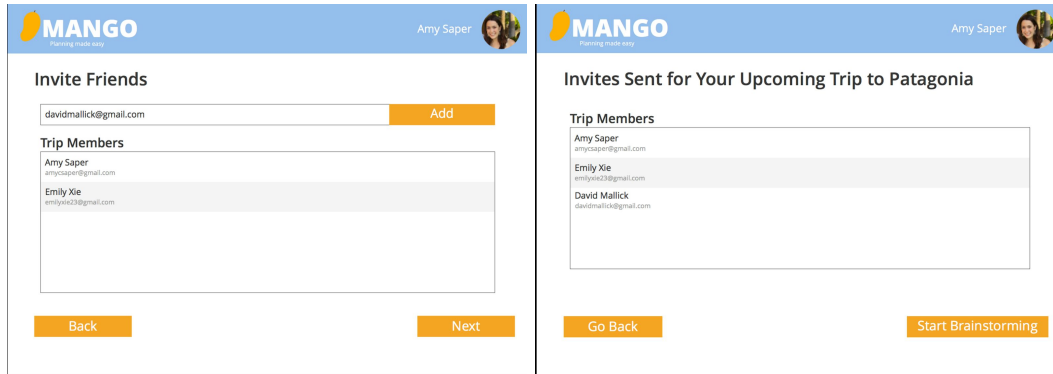
Based on this feedback, we added a confirmation screen before sending the invitation emails for our high-fi prototype.
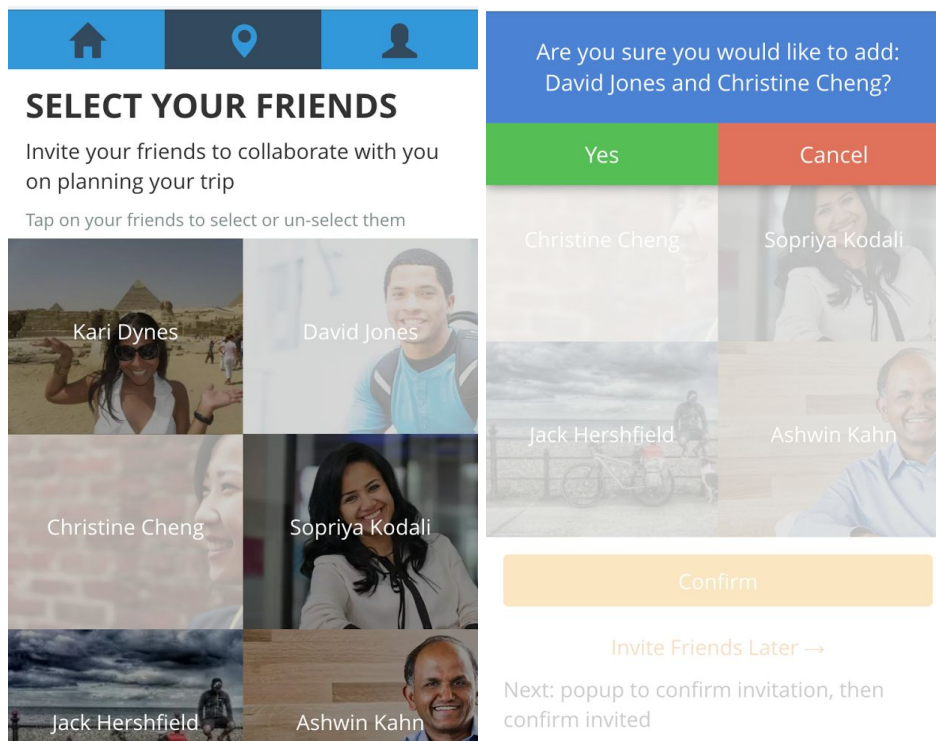
The complex task of brainstorming ideas and adding them to the itinerary also changed substantially throughout the design process. Initially, we broke this out into a separate brainstorm and itinerary view in the low-fi prototype.
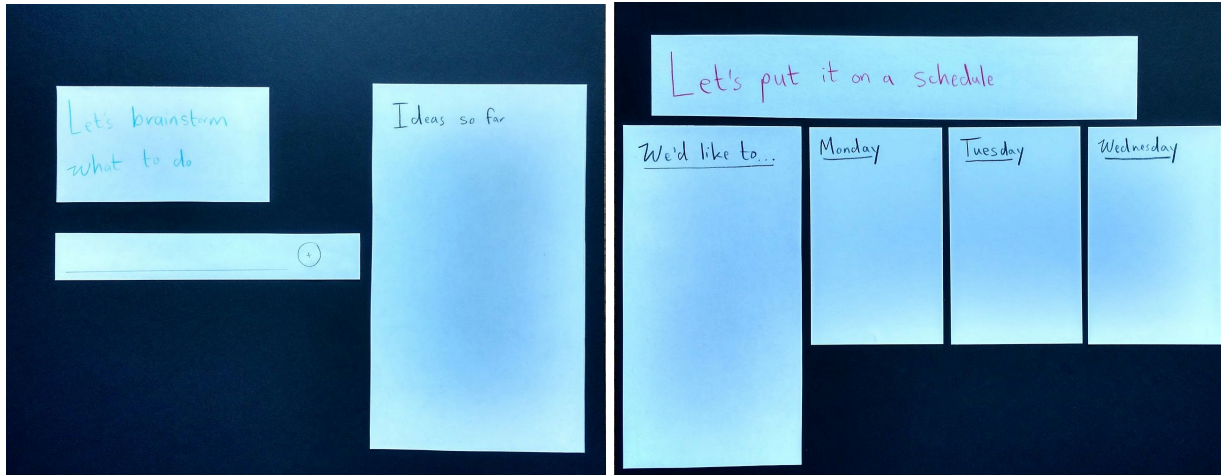
In the medium-fi prototype, we separated out the "brainstorm" element from the "setup schedule" part of the task.
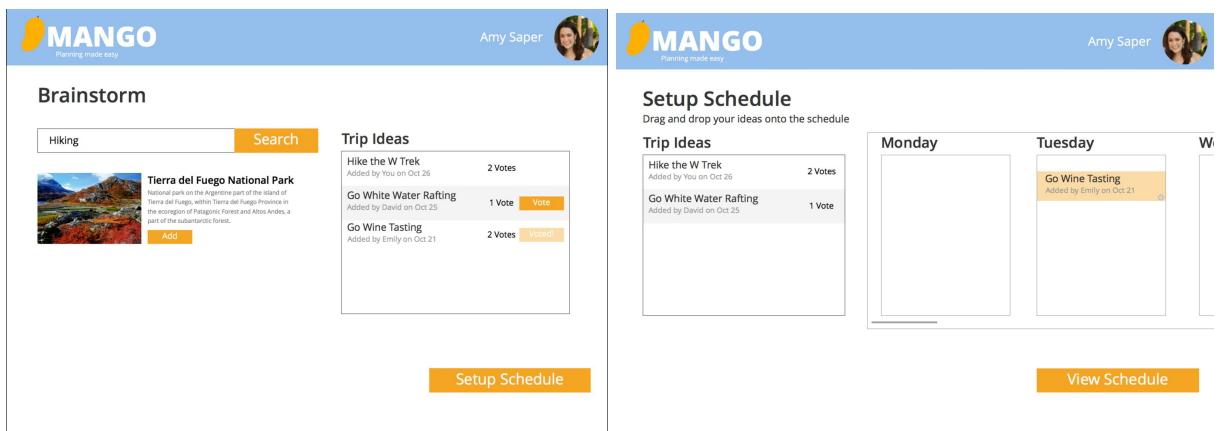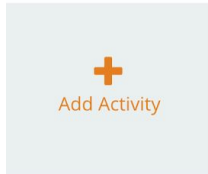

The hi-fi prototype combined these steps into one more fluid task (including our initially planned drag-and-drop functionality) and removed the complicated voting component (could be an interesting development for v2).
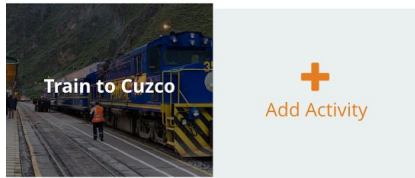
Activities

Drag and drop activities to assign them to dates (All changes will be saved automatically)

Unplanned Date

+
Add Activity

Saturday, February 6, 2016

Train to Cuzco

+
Add Activity

### 5. Major Usability Problems Addressed

Heuristic violations level 3 or higher:

1. **Problem: [H2-1. Visibility of system status] [Severity 3] [Found by: A, B, C]**
   "Clicking "Next" on the "Invite Friend" page automatically sends invitations. As a user I did not expect this and would want to be made aware if I'm about to send a mass invitation out. A solution would be to add a "Send Invites" button to this page I have to click before I can click the "Next" button."
   **Fix:** Pop-up confirmation before invites are sent out.

| Before	After
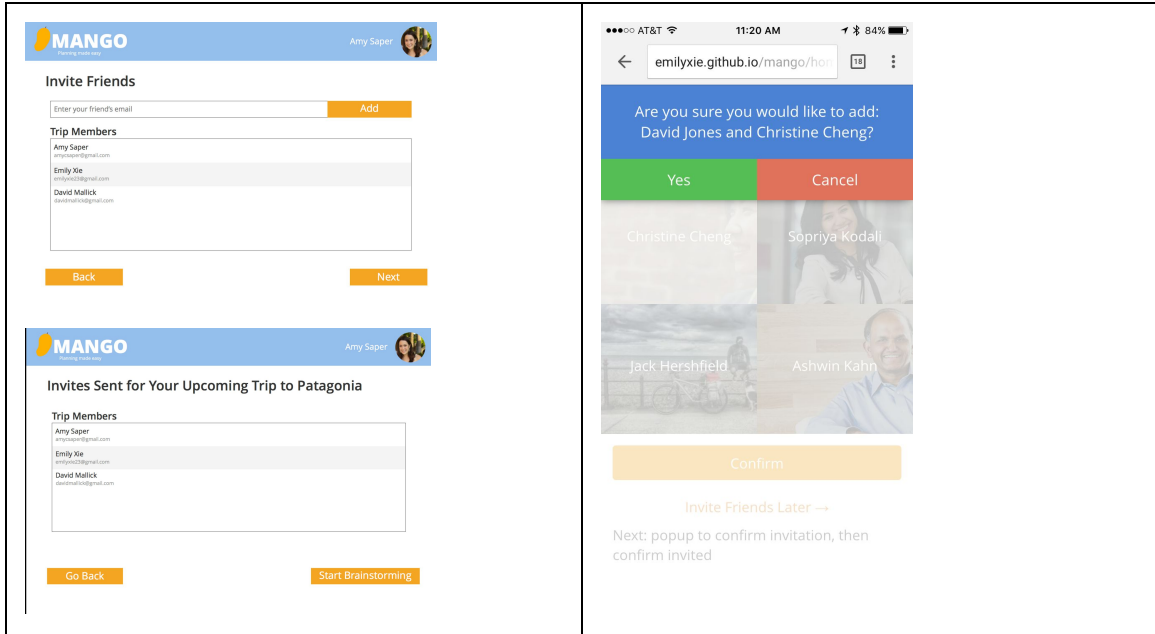
2. **Problem: [H2-3. User control and freedom] [Severity 4] [Found by: A, B, C, D]**
"Once I have voted on a trip idea it appears there is no way to "un-vote" this idea. A solution would be to add another button that enables users to undo votes or have the "vote" button turn into an "un-vote" button instead of a greyed out "voted" button once clicked."
Fix: Removed voting feature because it was non essential to our three central tasks. Any user can directly add activities to trips' itineraries.

Before	After
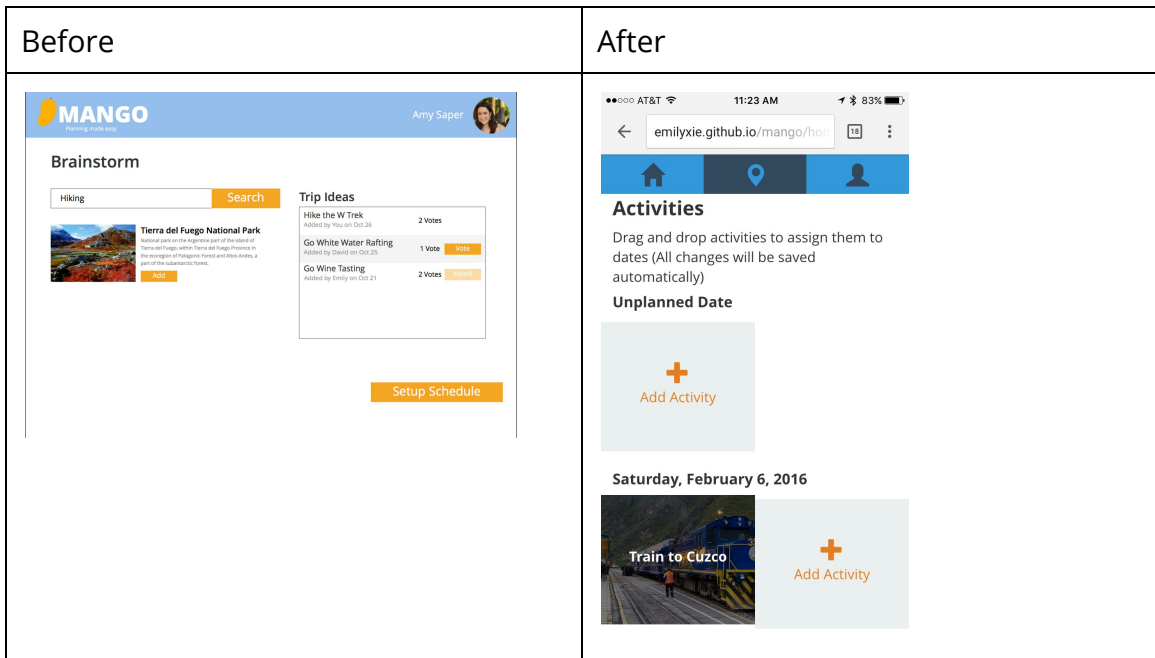
3. **Problem: [H2-3. User control and freedom] [Severity 3] [Found by: A, B, C, D]**
   "On the "Invite Friends" page it appears there is no way to remove a trip member once I have added their email address. A solution would be to add an "X" next to the names that have been added so I have the option to remove them."
   **Fix:** User is able to select and deselect friends to invite at his or her whim.

| Before	After
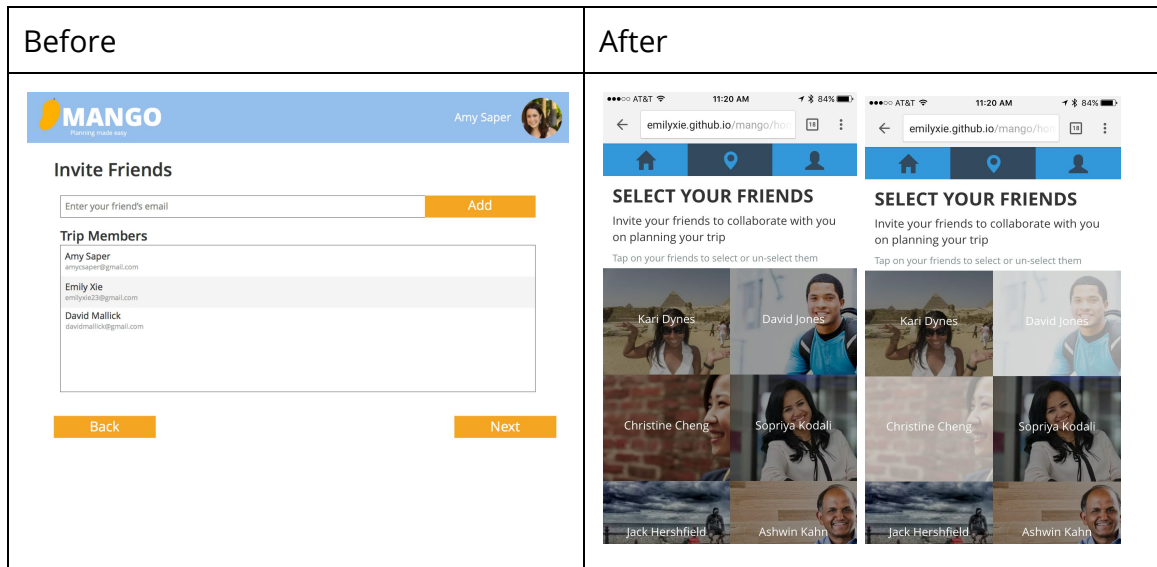
4. **Problem: [H2-3. User control and freedom] [Severity 4] [Found by: B, C, D]**
   "It appears there is no way to remove trip ideas. This could be intentional as all ideas may be valid and will be filtered out via the voting system but I still think it would be nice to be able to take out ideas that were either accidents or are clearly not viable to remove clutter. A solution would again be to add an "X" next to the ideas to remove them."
   Fix: Once an activity has been added, it can be deleted. There is a trash can icon in the top right corner of the Edit Trip page.

| Before	After
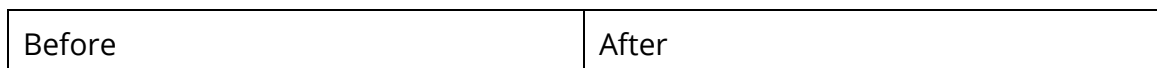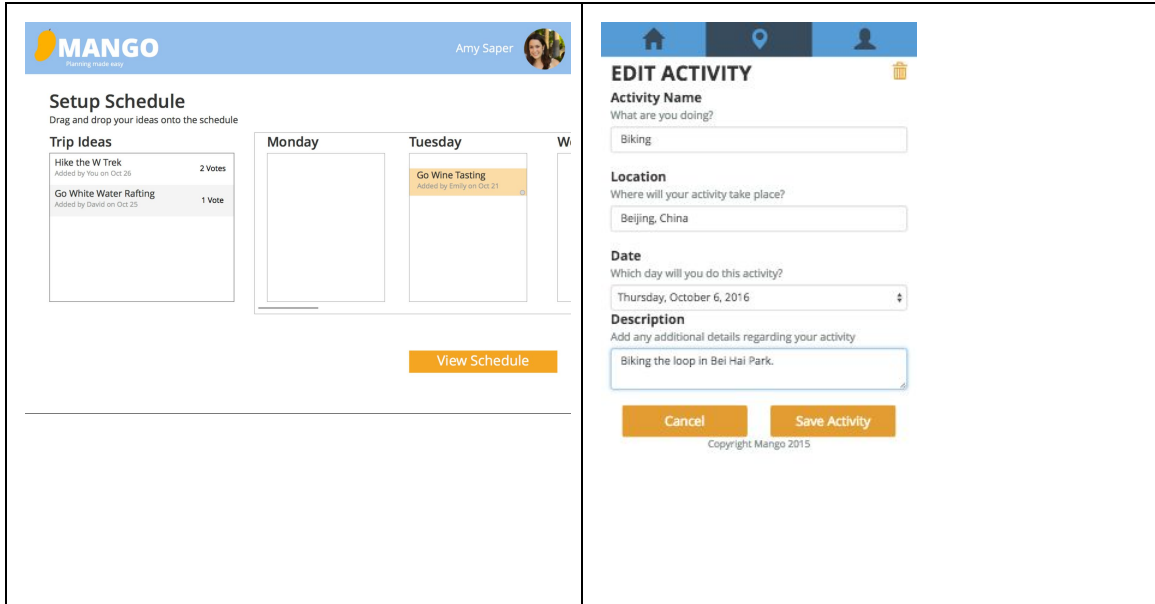
5. **Problem: [H2-3. User control and freedom] [Severity 3] [Found by: B, C, D]**
"There doesn't appear to be any way of specifying the time or duration of an activity. This is particularly confusing on the "View Schedule" page, where "Go Wine Tasting" seems to be taking up less of Tuesday than the other events are on Monday/Wednesday. A solution would be to enable users to decide on time/duration of activities and display this on the calendar."
Fix: This is one of the features we trimmed when we made the app leaner. Users are still able to view the activities on their itinerary, just not able to specify duration or time of activities.

Before	After
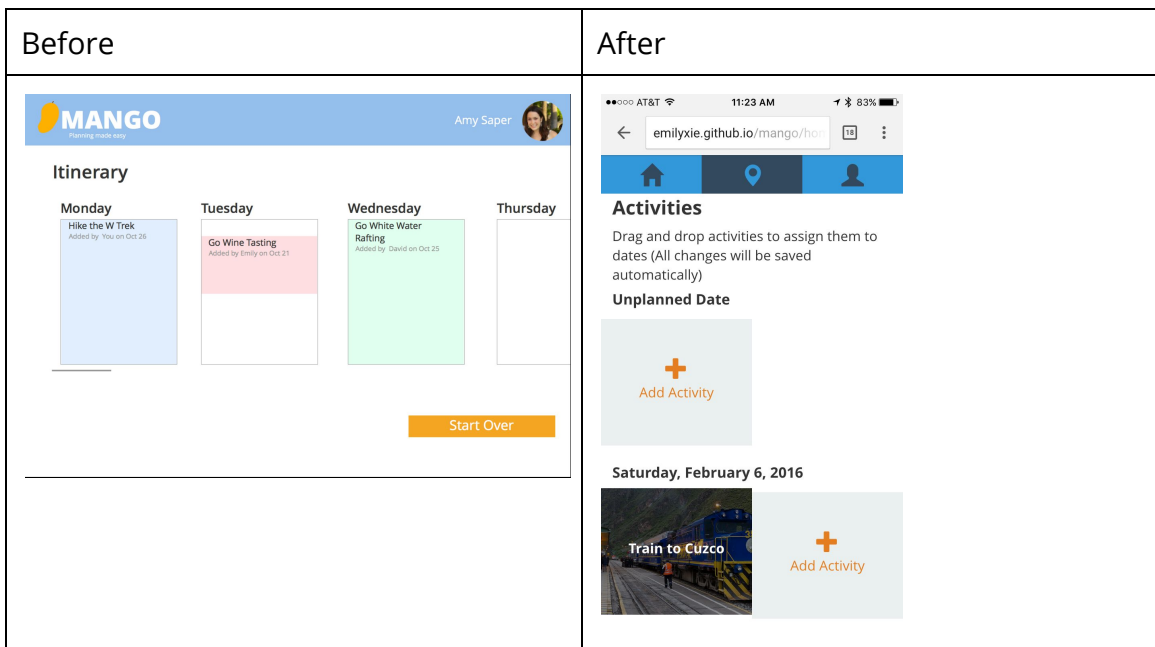
6. **Problem: [H2-3. User control and freedom] [Severity 4] [Found by: A, B, C, D]**
   "There is currently no way to leave the itinerary page. A solution would be to add a "Back" button to navigate back to the "Setup Schedule" page."
   **Fix:** Now, schedule setup and the itinerary are on the same Trip page. But additionally, user can navigate back at any time by hitting the browser's back button which is a convenience of pivoting to mobile web. They can also tap the Home button to return to the home page.

Before	After
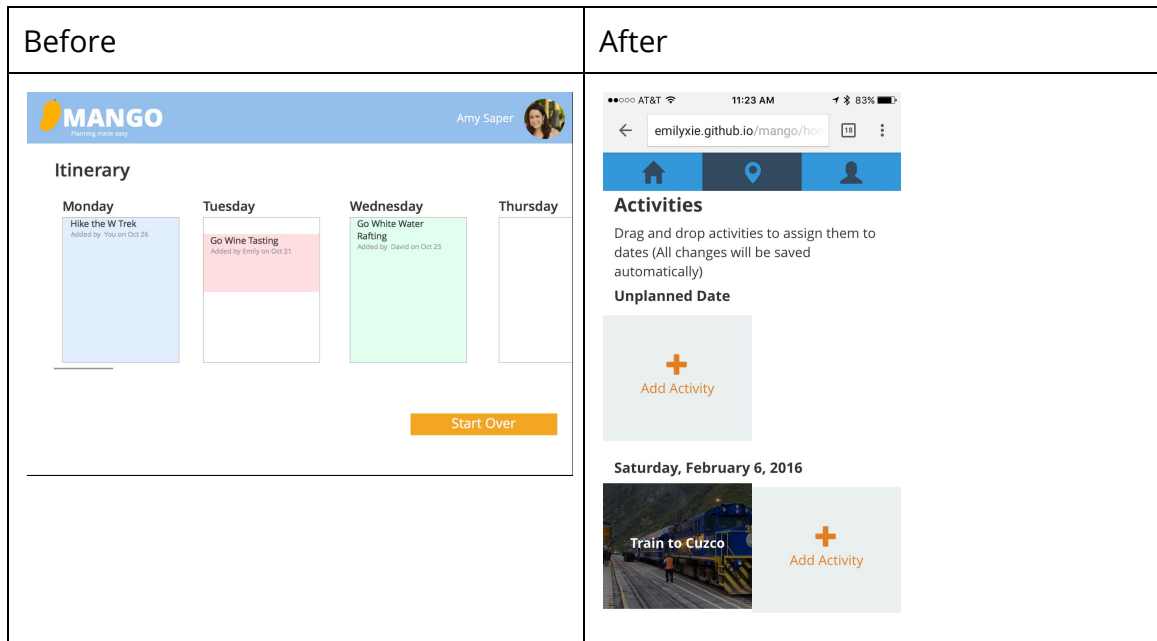
7. **Problem: [H2-3 User Control & Freedom] [Severity 4] [Found by: C, D]**
   "There is no way to navigate back to the "Brainstorming" page from the "Setup Schedule" page. There should be a "Back" button."
   Fix: In the same vein as the fix for Violation 6, users can brainstorm on the same page that they set up their schedule. And again in general, back-navigation can be done by the browser back button.

Before	After
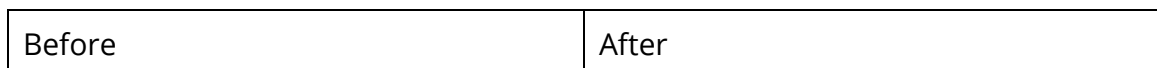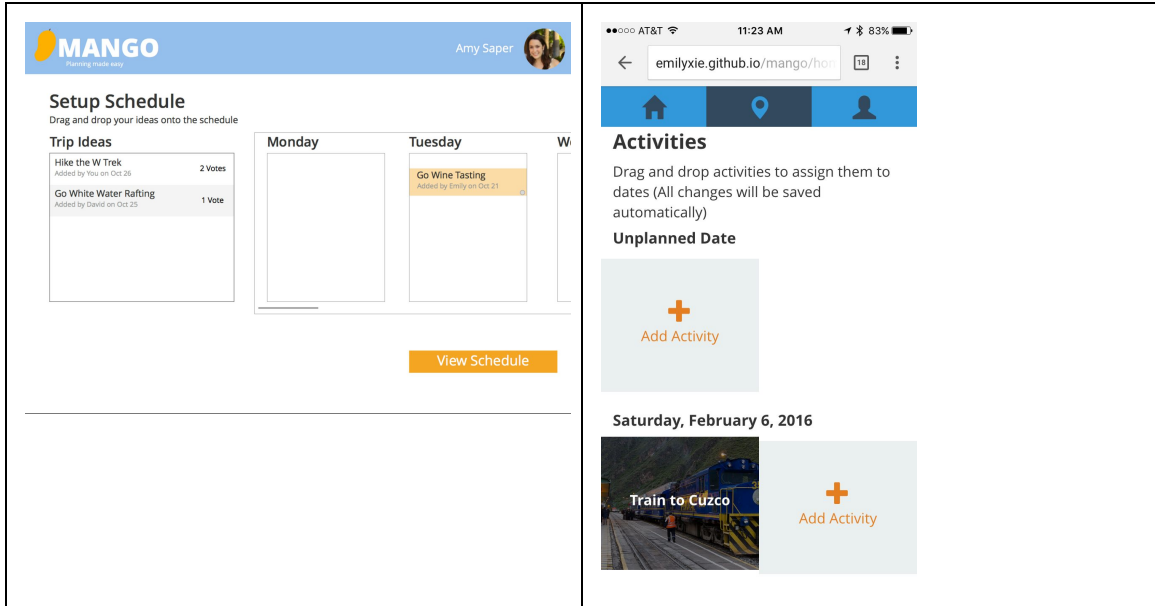
8. **Problem: [H2-3: User Control & Freedom] [Severity 3] [Found by: C]**
   "The "Brainstorm" screen does not give any way to invite more friends or change the trip location or dates. Users might get to the brainstorming stage and want to invite someone else or change the dates for their trip. Provide the user a screen to edit this information once they have already hit the "Brainstorm" stage."
   Fix: Brainstorming takes place on Trip pages. From a Trip page, users can hit the Edit Trip button at the bottom of the page if they want to invite additional friends or change the dates of their trip.

Before	After
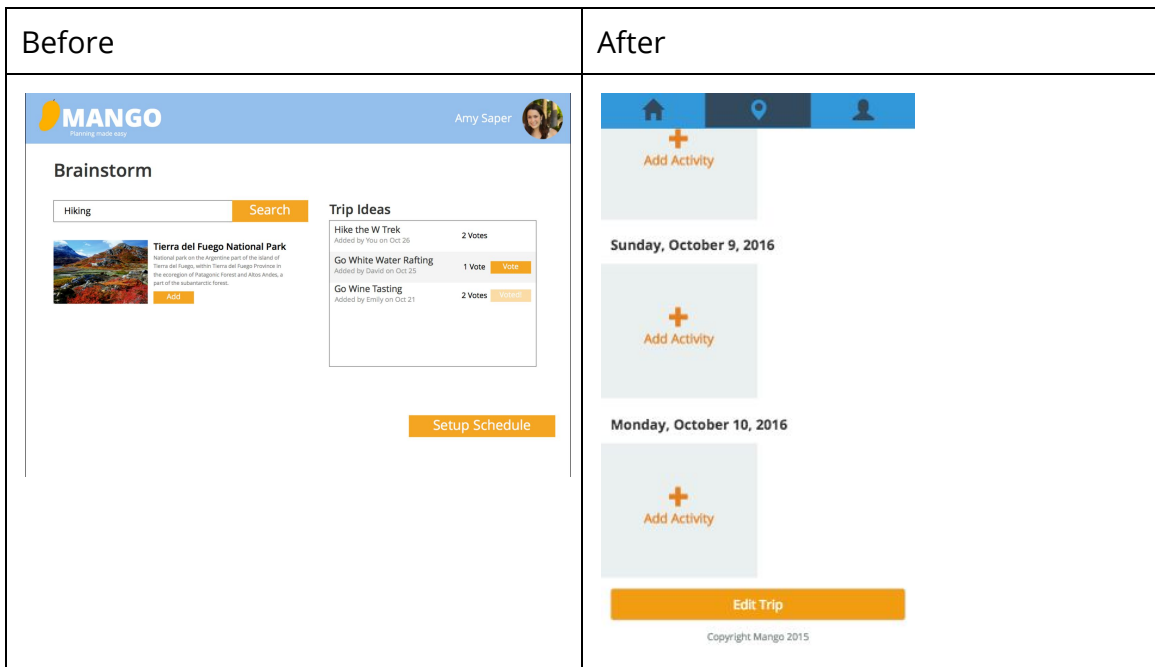
9. **Problem: [H2-3: User Control & Freedom] [Severity 3] [Found by: C, D]**
   "The "Setup Schedule" screen does not show a way to remove events from the calendar. Users might accidentally add an event and want to remove it. Provide an "X" button to remove events from the schedule."
   **Fix:** In order to remove an event from the calendar, the user can hit the trash icon in the top right corner of the Edit Activity page.

Before	After
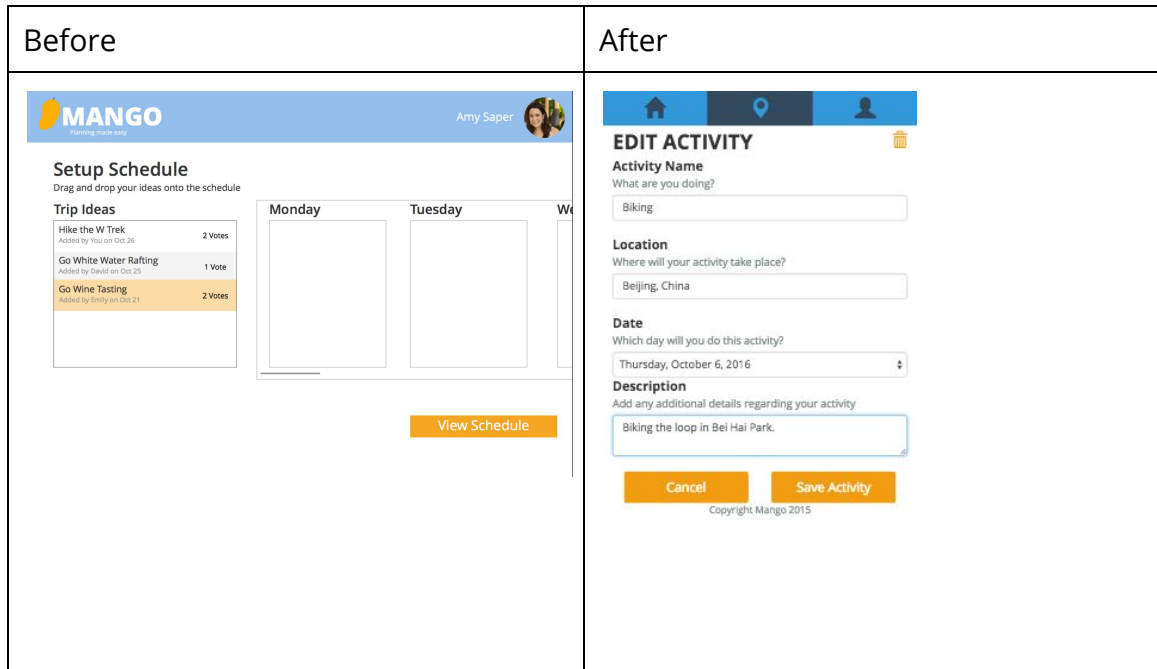
10. **Problem: [H2-6. Recognition rather than recall] [Severity 3] [Found by: A, B, D]**
    "When viewing the itinerary, I can see what's happening Monday-Friday but it would be nice to have different Calendar views (i.e. by week/month). There are also no times or dates in the calendar view so I have no way of knowing when the trip actually is. The solutions for this are simply to add times/dates to the calendar and perhaps add different ways of viewing other than a weekly scroll."
    Fix: Dates have been added to the itinerary, but as discussed in the section on Violation 5, times have not been implemented. Different calendar views would be interesting to implement if we had more resources (time).
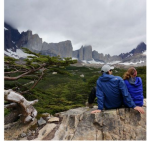
Before	After
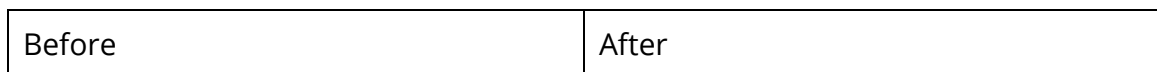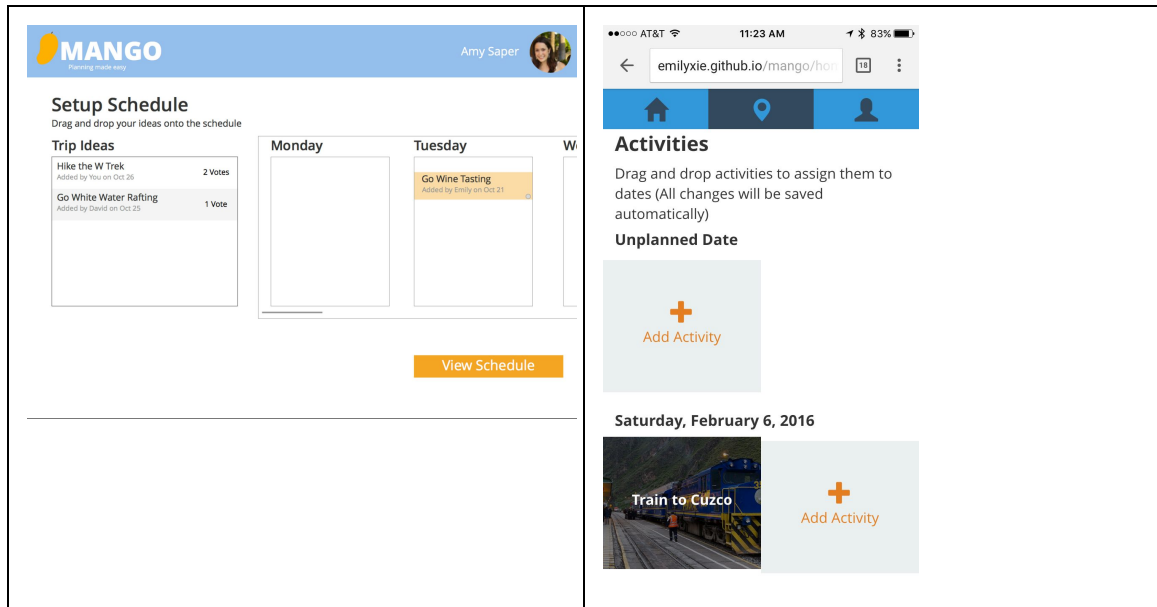
11. **Problem: [H2-6. Recognition rather than recall] [Severity 3] [Found by: A, B,C, D]**

"Currently many buttons in your flow are simply labeled "Back" or "Next" without indicating where the user is going back or forward to. A solution for this would be to either make the buttons more explicit or to have a progress tracker at the top or bottom of all pages when planning a trip so the user remembers where they are in the process and where they are navigating when they click a button."

Fix: Did away with the vague 'back' and 'next's and made the buttons in the app more explicit. Considered adding a progress tracker/breadcrumbs in the trip creation process, but ultimately decided not to implement it because the trip creation process takes only two steps. Decided two steps was not enough to warrant breadcrumbs.

Before	After

Additional changes:

1. Problem: In order to invite individuals, it is helpful for those individuals to have corresponding profiles rather than just email addresses.
   Fix: Created profiles for the user as well as for friends.

Before	After

6. Prototype Implementation

We built our product using Git, GitHub, Google Drive, SublimeText, and Chrome Developer Tools. Git's revision control was helpful in the occasion that our code regressed; it also facilitated code sharing for team collaboration. We used GitHub to host our code repository which saved us trouble finding a separate web domain. Google Drive was very useful for group collaboration, particularly in rapid development of the friends' profile pages and past trip pages. Rather than emailing photos and profile information between group members, we were able to divide the work and add them to one central workplace - our shared Drive. Additionally, we used SublimeText for its easy-to-use text editing interface. It supports quick search, color-coded text, and autocomplete among other features that overall are very helpful for developing code. Finally, we used Chrome Developer Tools to simulate mobile views from our laptops and rapidly test changes to our website's DOM.

Given the tools that we used, we were limited by a variety of different things. However, our primarily limitation was in the absence of a true back end. Instead, all backend functionality had to be spoofed through the use of Javascript's localstorage. This manifested itself through the presence of only one account, no ability to add multiple trips at once, and limited number of profiles and friends.

We took advantage of two APIs to help advance the functionality of our web app. First, we used the Google Maps API to include places autocomplete and the corresponding map image in our places search when adding a new trip. Second, we used the Flickr API to pull in images relevant to each trip and to each activity. We found that the image results tended to be too general with simply a place name, so we pulled the images based on the Trip name (ie "Patagonia trekking" vs "Chile"). This allowed for quick and easy customization on all user entered trip and activity ideas.

We did not use any Wizard of Oz techniques. However, we did hard-code several features in order to make implementing the product in our given time frame more feasible. Users do not have the option of creating an account; instead, they must access our product through Emily Xie's account (one of our team members). Additionally, we hard-coded past trips and friends' profiles. The primary rationale for hard-coding these features was to give us more time to invest in the more interesting tasks - travel coordination, collaboration, and enjoyment.

With more time, there are several features we could build out for more aesthetic and functionality. We would add a means of voting on activities: if we hard-coded the votes from Emily's friends, this feature would not be terribly difficult to implement. It would entail the addition of a button, as well as keeping track of an increment/decrement in the total number of votes. Next, we would enable the user to set durations and times for each of a trip's activities. Allowing the user to enter in time and duration information to an Activity page would not be hard either; however, it would be harder to display activities on the itinerary in a way that reflects their time and duration relative to other activities. Particularly, we would need to redesign the itinerary, keeping in mind the limited horizontal space afforded on mobile devices. Additionally, we would have implemented comments on activities and trips to allow other trip members to vocalize their thoughts on the trip. Finally, we would implement a more scalable way of inviting

friends: currently, the user can select and deselect friends on the Select Your Friends page. However, there are scenarios where this method breaks down; for example, if the user has a large number of friends, it is tedious to comb through a long list of pictures. With more time, we could implement a friend search feature.

7. Summary (1 paragraph)

From our first need-finding interviews at the start of the quarter, we realized that itinerary planning in a group can be stressful and complicated, so we sought to solve this problem. Through various stages of development (initial sketches, low-fi prototype, medium-fi prototype and hi-fi prototype), we iterated on our design to make it more usable, functional and aesthetically pleasing. Travel is highly characterized by photography, and people tend to associate places and activities with photos, so we incorporated photos heavily through the design of our web app. On mobile, people appreciate more simple, streamlined user interfaces, so we removed some unnecessary functionality and screen clutter to make our mobile web app as simple as possible. We addressed feedback from the teaching team and our peers to add confirmation screens, error messages, and editing functionality. While past trips and users are hard-coded for this project, we feel that Mango could prove enormously useful to individuals traveling in groups.