

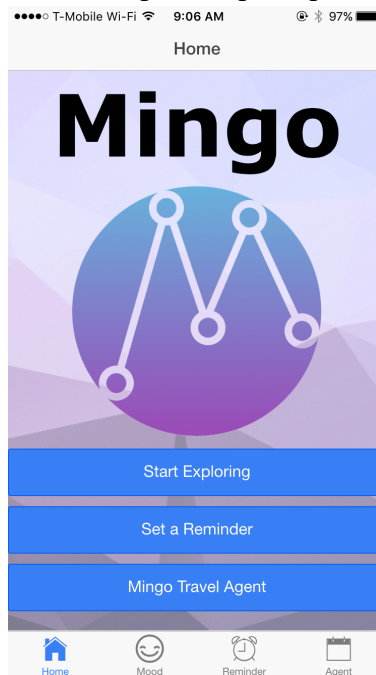
Minymoh A. (Design and Documentation)
Kevin H. (Design and Development)
Benjamin W. (Creative Content Producer)

Mingo!

Make every mood a travelling mood

Problem and Solution Overview

Travellers often experience “travel burnout” due to intensely packed, rigidly structured, and numbingly repetitive schedules. Mingo’s mission is to prevent “travel burnout” by taking a traveller’s current mood into account when planning an activity. Mingo keeps travel fresh and spontaneous, allowing users to experience popular sights in new ways while also suggesting lesser known sights and experiences that help mix up the pace and tone of a trip.

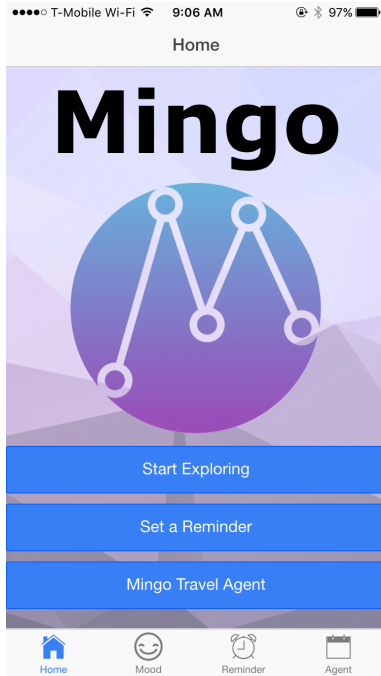


Mingo Home Screen

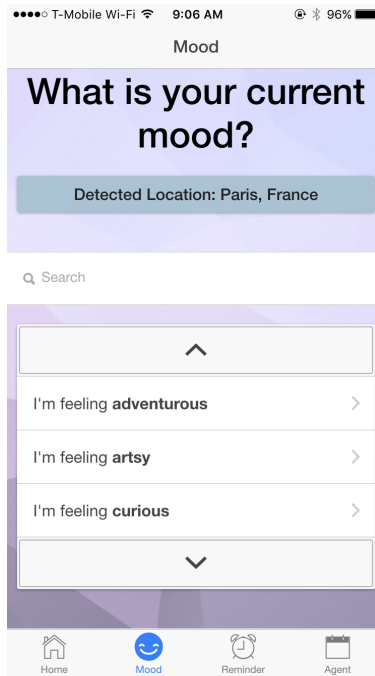
Tasks & Final Interface Scenarios

Task 1: The user is bored and wants to engage in an activity that complements her mood.

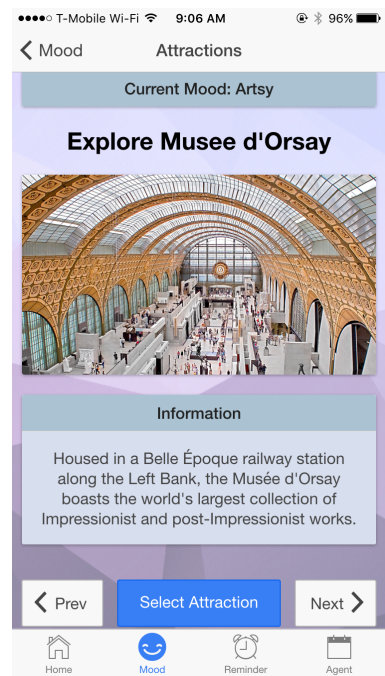
The storyboard for Task 1 is shown below:



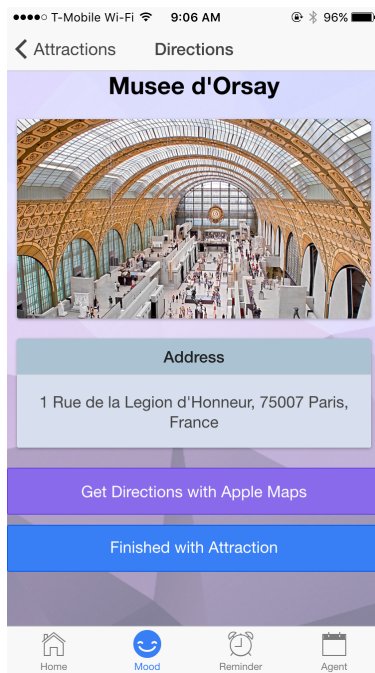
1. Home Screen



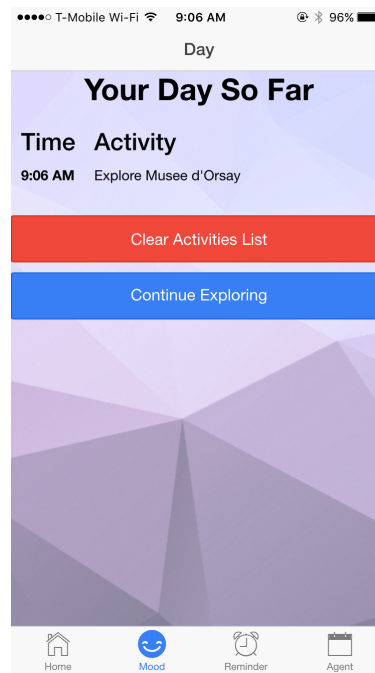
2. Mood Screen



3. Attraction Screen



4. Directions Screen



5. Itinerary Screen

Task 1 Storyboard

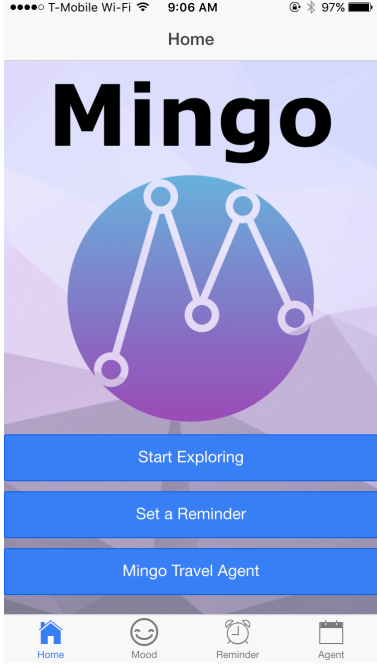
In this task, the user is bored and uses Mingo to find something to do. The user begins by opening the application, landing on the Home Screen, and tapping the 'Start Exploring' button. This brings the user to the Mood Screen, in which the user can scroll and select the mood most closely matching his or her current mood, or search for one. Afterwards, the user is brought to

the Attraction screen. The user can either accept the suggested activity by tapping the ‘Select Attraction’ button, or use the ‘Prev’ or ‘Next’ buttons to get a new suggestion. Once the user taps the ‘Select Attraction’ button, he or she will be brought to the Directions screen. On this screen, the user can get directions with the native mapping application. Once the user has finished the activity, he or she is brought to an Itinerary Screen that details all of the activities the user has engaged in that day. The user then has the option to tap the ‘Clear Activities List’ button to clear the current list, or tap the ‘Continue Exploring’ button, which would take the user back to the Mood Screen.

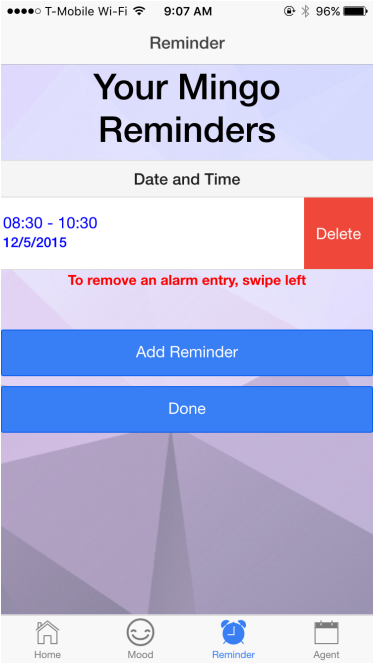
This task was chosen since it represents the most core and basic idea of Mingo: finding something to do based on your current mood. Furthermore, this task is the most important one, as the remaining two tasks are extensions of this fundamental one.

Task 2: The user wants to set a reminder to engage in a mood based activity at some later point in the day.

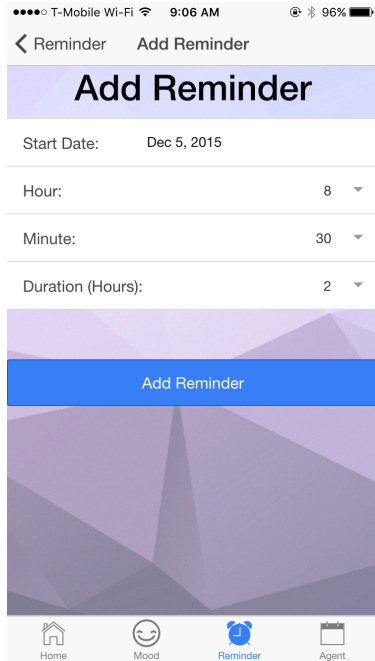
The storyboard for Task 2 is shown below:



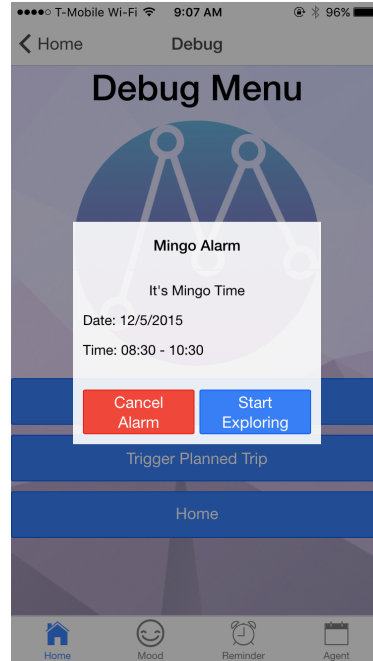
1. Home Screen



2. Reminders Screen



3. Add Reminder Screen



4. Reminder Popup

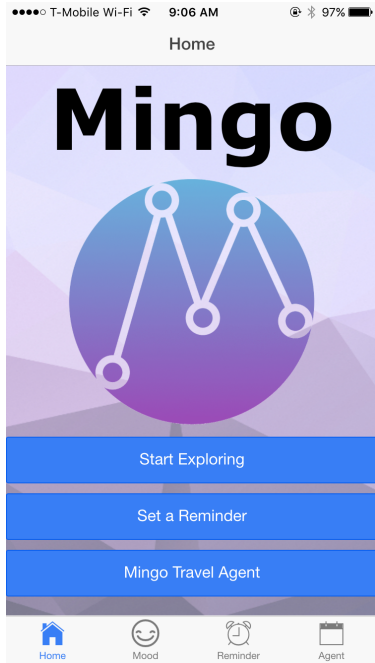
Task 2 Storyboard

In this task, the user wants to set a reminder to use Mingo at a later date. From the Home Screen, the user taps on the ‘Set a Reminder’ button. This brings the user to the Reminders Screen, in which the user can view and delete past reminders as well as add new reminders (using the ‘Add Reminder’ button). From the Add Reminder Screen, the user can input the details of a new reminder, then press the ‘Add Reminder’ button to add this current reminder to the list. When it is time for a reminder, Mingo will prompt the user with a Reminder Popup. From this popup, the user can either cancel the reminder, or start exploring (see Task 1).

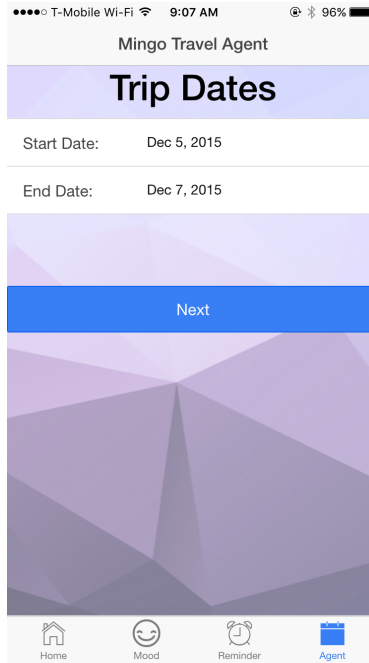
We chose this task since we believe it is a logical extension from the first task. In task 1, the user is able to choose an activity based on his or her current mood. We felt that it was important to introduce a time-delay functionality to the application, allowing users to choose an activity based on his or her current mood sometime in the future.

Task 3: The user wants to have a spontaneous trip based on his mood while also not missing out on key attractions.

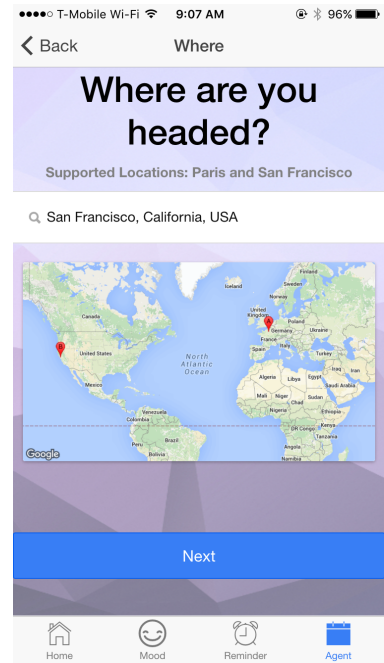
The storyboard for Task 3 is shown below:



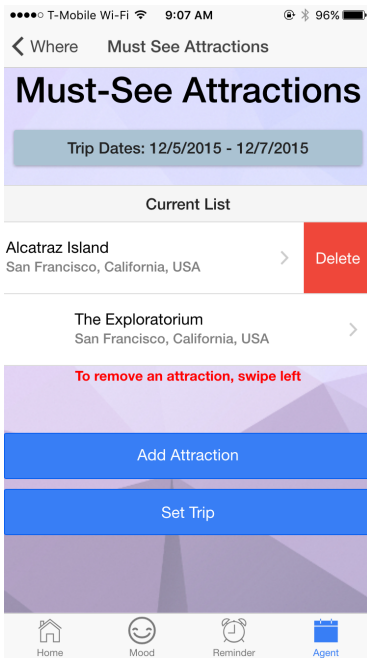
1. Home Screen



2. Trip Dates Screen



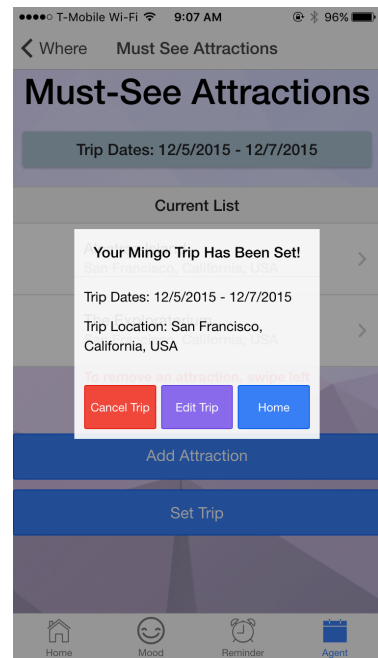
3. Where Screen



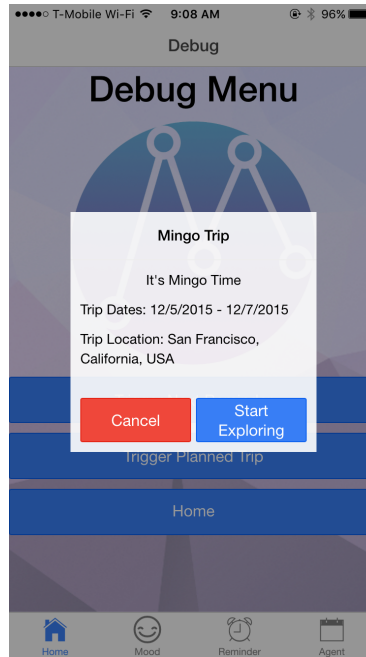
4. Must-See Screen



5. Add Attraction Screen



6. Confirmation PopUp



7. Trip Popup

Task 3 Storyboard

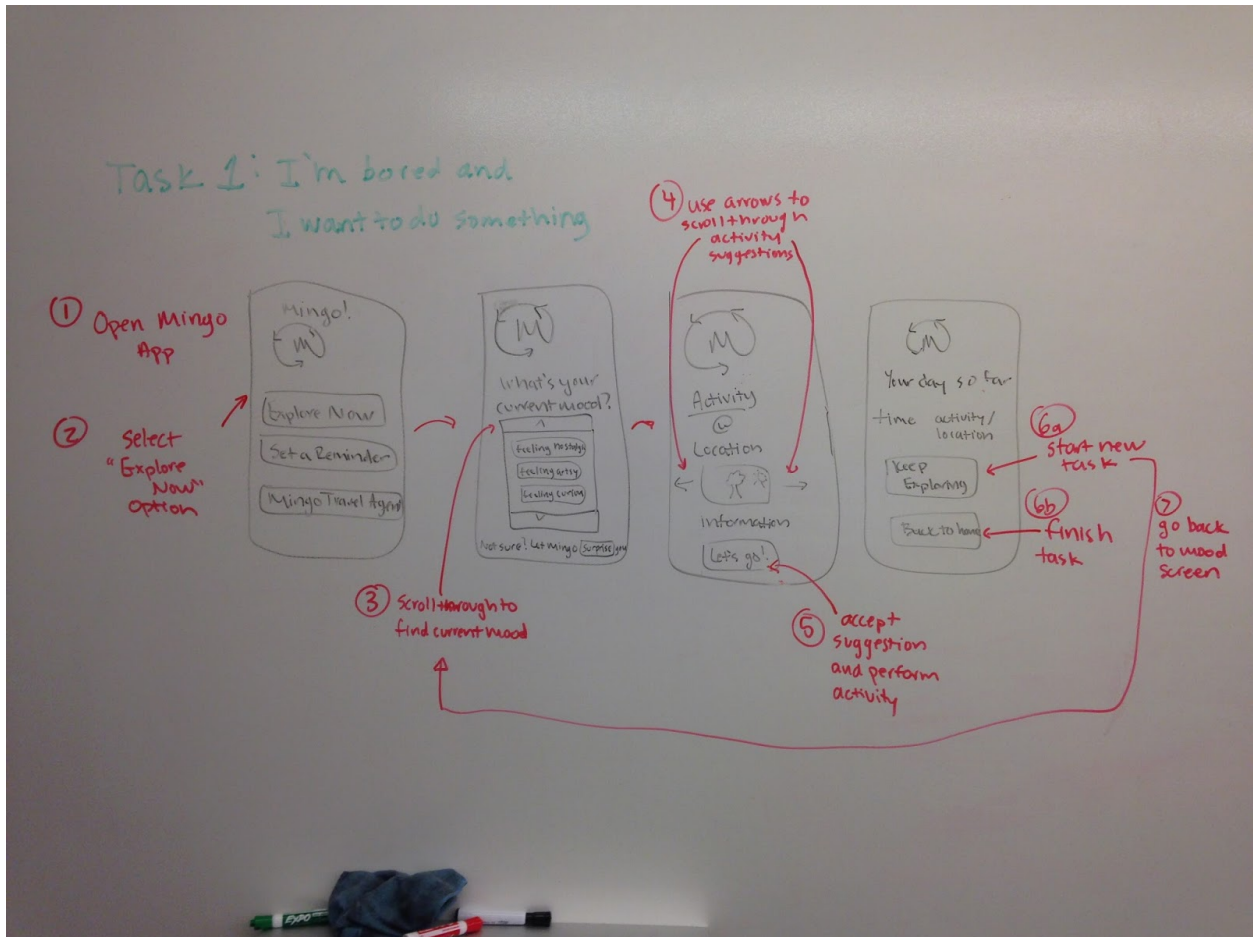
In this task, the user wants to have a spontaneous trip, but also wants to ensure that he or she does not miss out on key attractions. From the Home Screen, the user taps on the 'Mingo Travel Agent' button. This brings the user to the Trip Dates Screen in which is used to specify the start and end of a trip. The next screen is the Where screen. The user can either tap on a location on the Map, or manually enter the location in the search box. Upon tapping 'Next', the user is then brought to the Must-See Screen. Here, the user can view or delete attractions in his or her must-see list. Tapping on the 'Add Attraction' button brings users to the Add Attraction Screen. From here, users can scroll through attractions and choose the one that he or she wishes to add to the must-see list. Once, the user is done with the list, he or she can tap the 'Set Trip' button to finish the trip planning process. The user then gets a Confirmation Popup where he or she can cancel the trip, edit the trip, or go back to the Home screen. Note that since only one trip can be set at a time, if the user sets a trip, and then tries to go back to the Agent tab without any further action, this confirmation screen will appear again. Finally, when it is time for a trip, Mingo will prompt the user with a Trip Popup. From this Popup, users can either cancel the trip, or start exploring (Task 1).

This last task was selected because we felt that Mingo would be useful on a semi-planned trip. It is very rare for users to embark on trips without anything planned, and we decided to take this into account. This task represents a compromise, it let's users plan some aspects of their trips, while still being able to take advantage of the spontaneity offered by Mingo.

Design Evolution

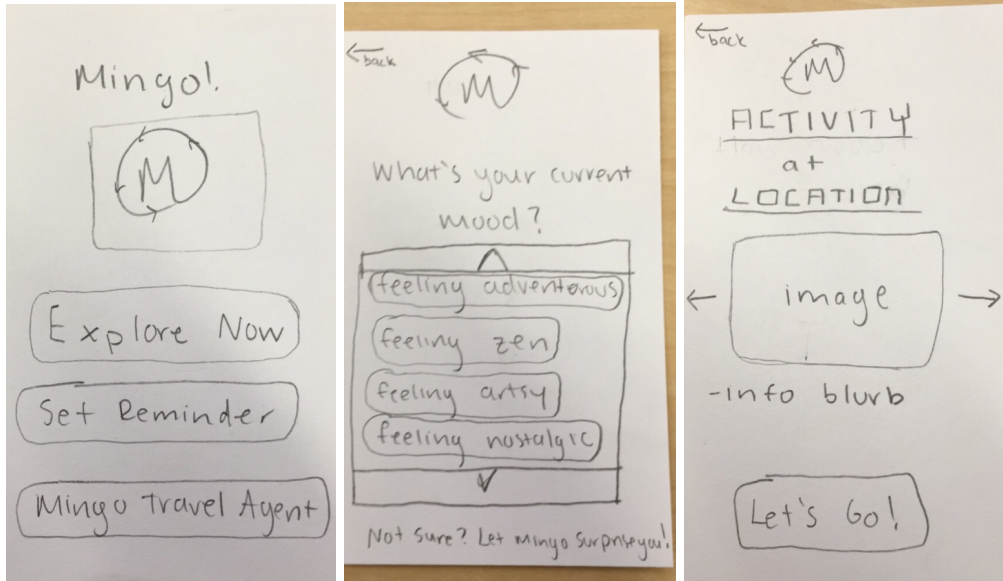
Mingo has undergone several design evolutions from conception to the final prototype. We feel that the task which best represents this evolution is the first one (finding an activity to do based on your current mood). Therefore, we will follow the evolution of our first task below:

After our initial set of need-finding interviews and experience prototypes, we started fleshing out the task of finding an activity based on your current mood with a sketch shown below:



Task 1 Storyboard Sketch

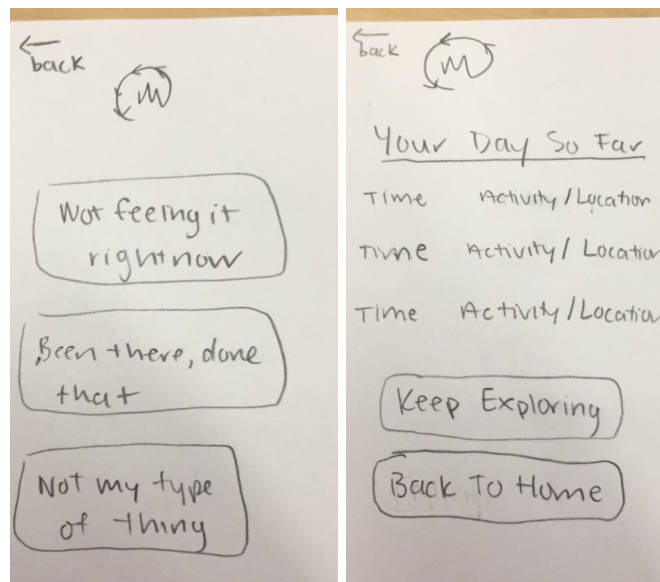
After deciding that the storyboard was appropriate, we proceeded to create a set of paper images for use in our Low-Fi prototype. This required slightly more detail to be added. The set of images used for our Low-Fi prototype for this task are shown below:



Home Screen

Mood Screen

Activity Screen

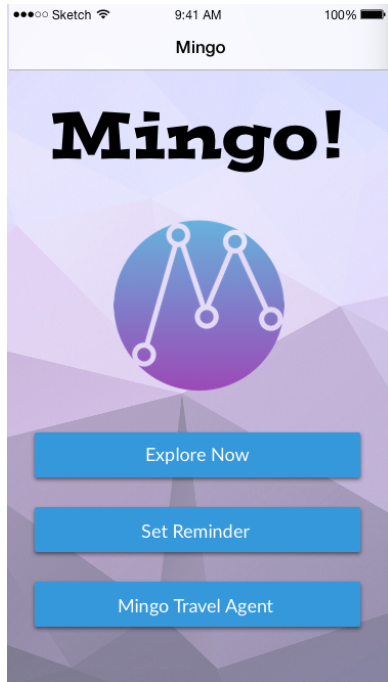


Feedback Screen

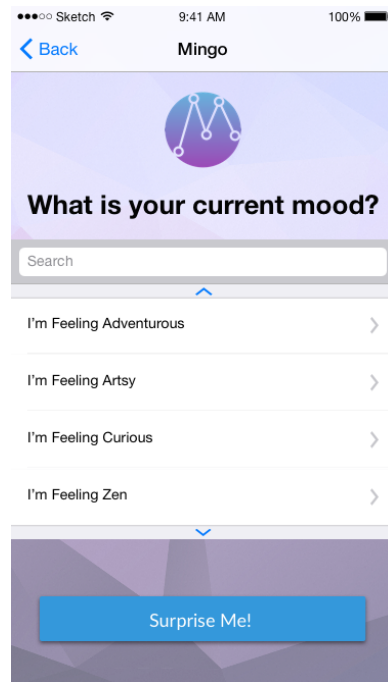
Itinerary Screen

Task 1 Low-Fi Prototype Screens

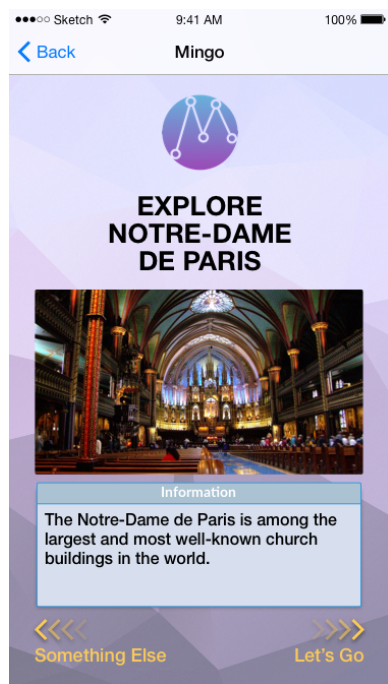
With our Low-Fi prototype complete, we set out to interview multiple participants for feedback. For this task, users found that the mood screen was very limited, and suggested the addition of a search box. The activity screen received a lot of criticism for its confusing nature. Users were not sure how to scroll through activities. Furthermore, switching activities triggered a feedback screen which prompted the users for why they did not choose an activity. Users found that this interaction was cumbersome and disrupted the overall flow of the application, and suggested to remove the feedback screen entirely. Using these recommendations, we proceeded to create our Medium-Fi prototype, shown below:



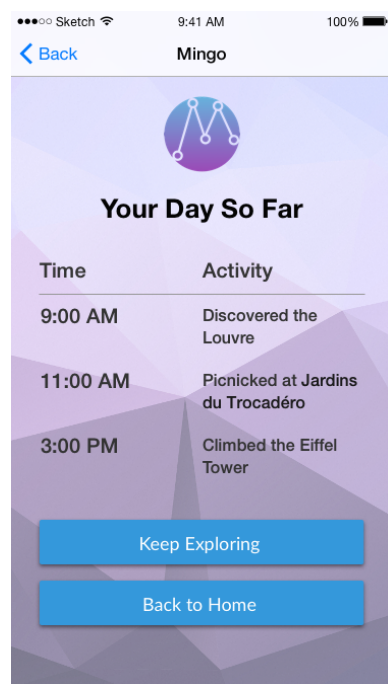
Home Screen



Mood Screen



Attractions Screen



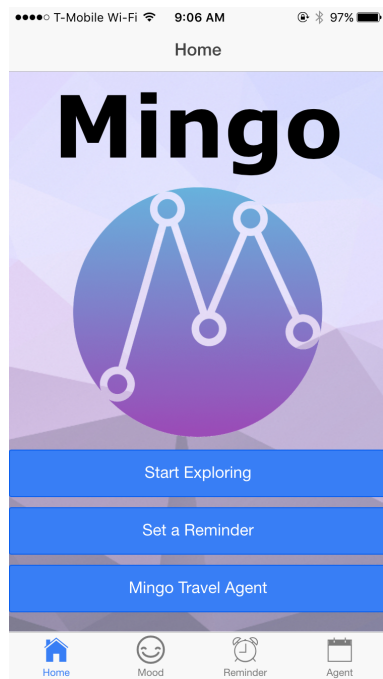
Itinerary Screen

Task 1 Medium-Fi Prototype Screens

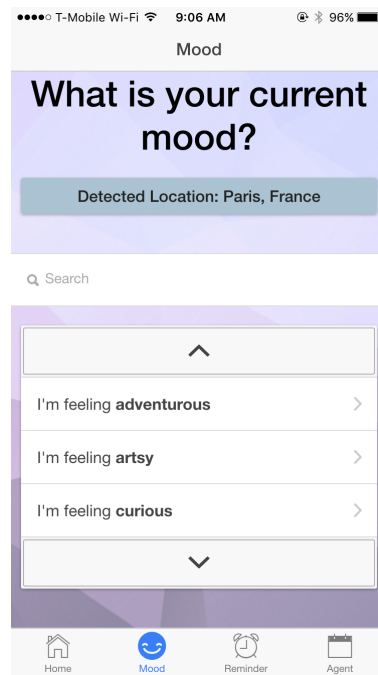
The changes we made in our Medium-Fi prototype are shown in the images above. Notice the added search bar and the removal of the feedback screen. Furthermore, in order to avert any confusion with our attractions screen, we labelled the swiping directions (left for “Something Else”, right for “Let’s Go”). This resulted in the removal of the explicit “Let’s Go” button seen

in our Low-Fi prototype. Finally, on our mood screen, we added an explicit “Surprise Me” button, which replaced the confusing bit of documentation (“Not sure? Let Mingo surprise you!”) seen in the Low-Fi Prototype.

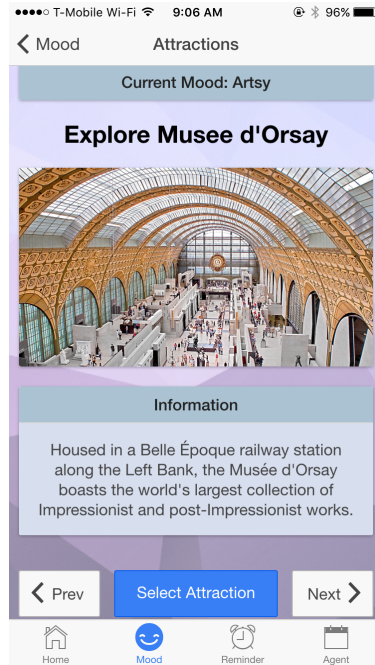
Our Medium-Fi prototype was then given to other users (students in our Studio) for a heuristic evaluation. Following this evaluation, we made further changes (explained below) and designed a final set of screens for our Hi-Fi prototype, which are shown below:



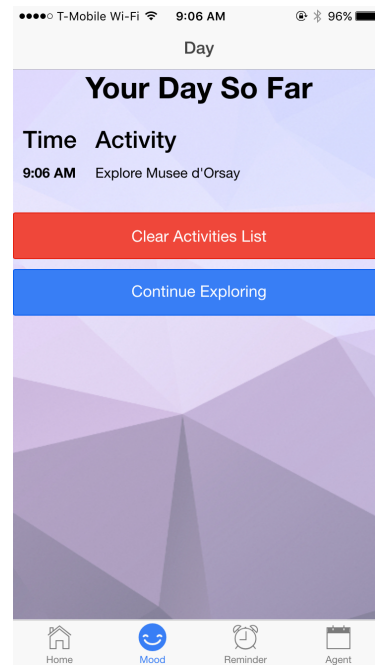
Home Screen



Mood Screen



Attractions Screen



Itinerary Screen

Task 1 Hi-Fi Prototype Screens

Major Usability Problems Addressed

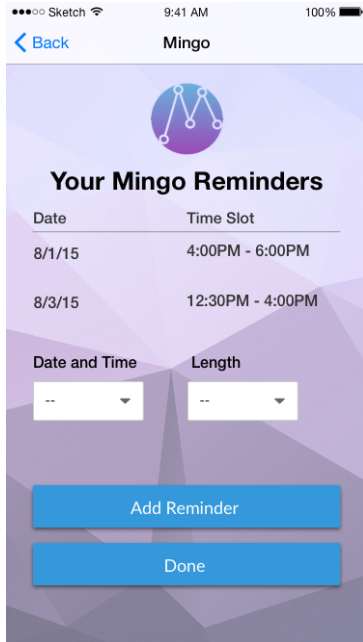
Level 3 and 4 violations from Peer Heuristic Evaluations

Violation

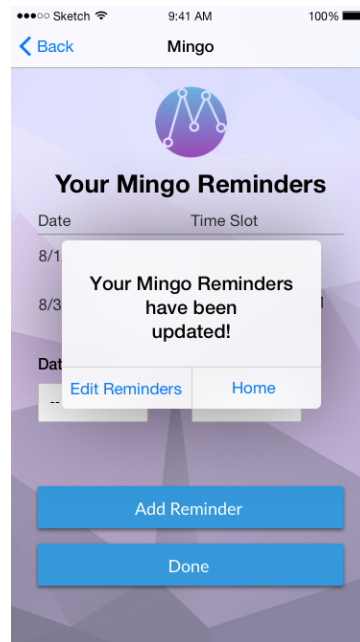
[H2-1: Visibility of System Status][3] On the “Your Mingo Reminders” page, it is unclear which reminders were just added and which ones were previously saved because the user must click the “Done” button in order to save her changes.

Changes and rationale

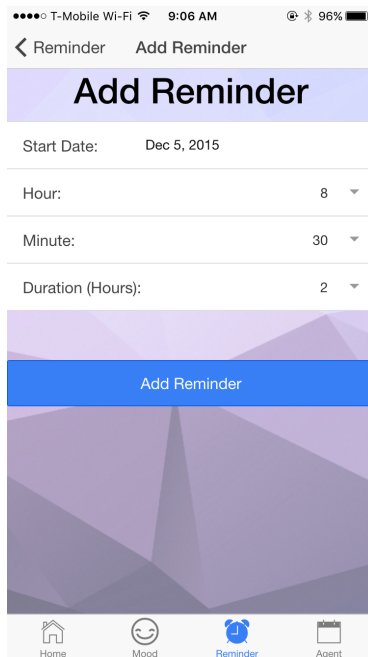
We removed the “Done” button and streamlined the flow of adding a reminder by removing the modal that popped up once a reminder had been added, and instead simply showing the new reminder on the list of reminders. We also highlighted the last added reminder in blue to distinguish the newly added reminder from existing reminders.



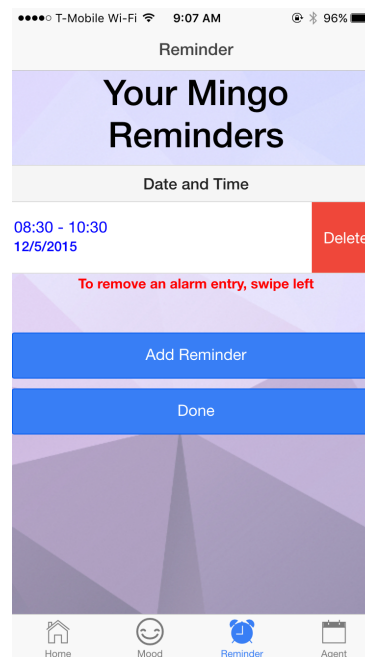
Med-fi Add Reminders Screen



Med-fi prototype after adding Reminder



Hi-fi Add Reminders Screen



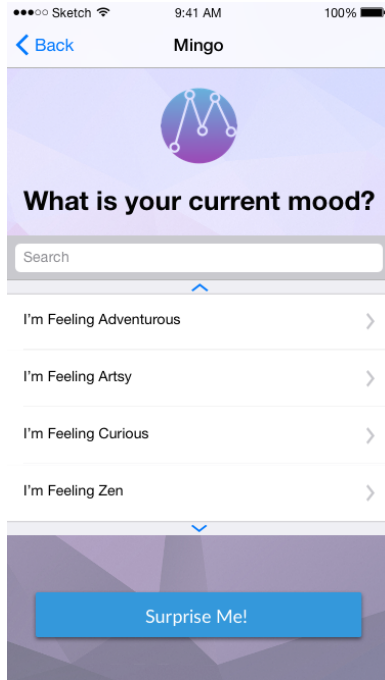
Hi-fi prototype Reminders screen after adding a reminder

Violation

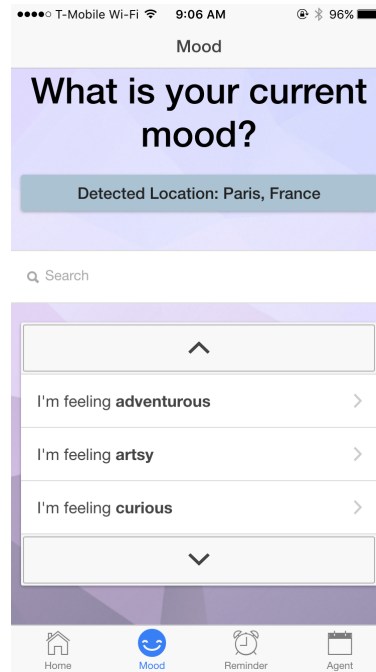
[H2-2: Match Between System & Real World][3] Mingo logo is found within a circle. This is reminiscent of a button, however the clicking on the logo does nothing.

Changes and rationale

We chose remove the Mingo logo from every page except the home screen to minimize confusion with regards to the logo's functionality as a button.



Med-fi Mood Screen with Logo



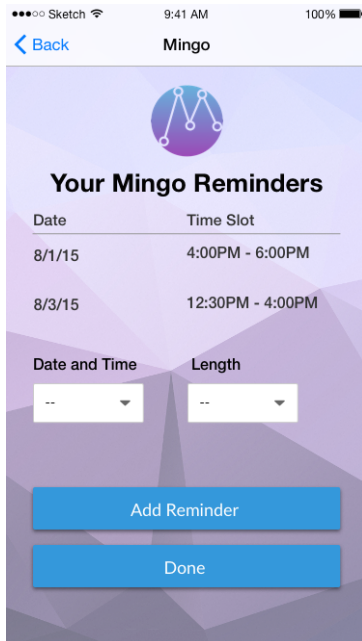
Hi-fi Mood Screen

Violation

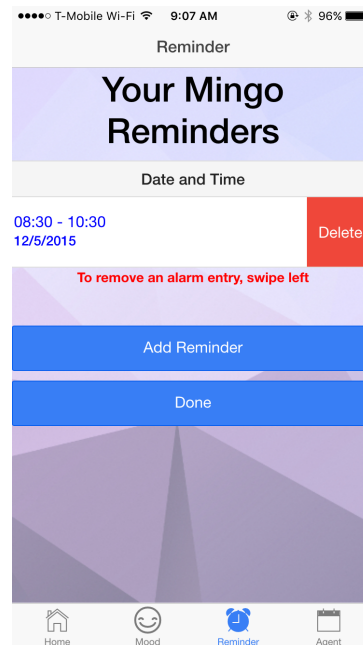
[H2-3: User Control & Freedom][4] User can't remove or edit reminders in the Reminders Screen. User needs to be able to delete or change time of saved reminders.

Changes and rationale

We added functionality for the user to be able to delete a reminder. Because the process of editing a reminder is exactly the same as creating a new reminder, we chose to not implement reminder editing functionality. We chose to follow the iOS "slide to delete" method because it would be familiar to users.



Med-fi Reminders screen with no delete functionality



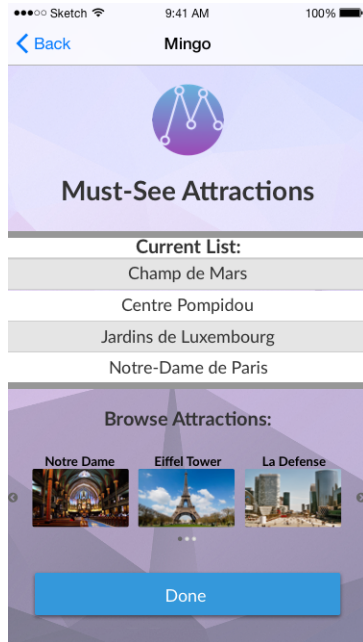
Hi-fi Reminders screen delete functionality

Violation

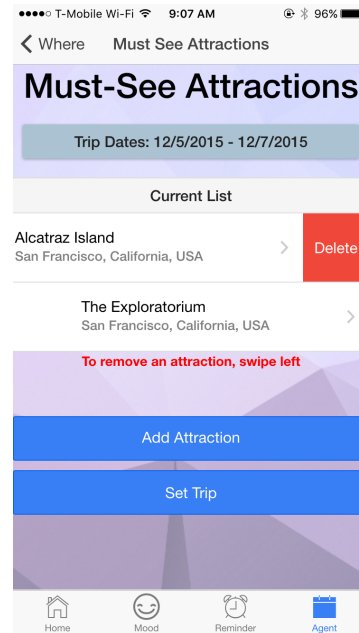
[H2-3: User Control & Freedom][4] Within the Travel Agent, there is no visible way to remove items from “Current List”.

Changes and rationale

We added functionality to enable a user to delete an existing entry from the “Current List.” We chose to implement the delete functionality to mirror the delete functionality in the Reminders list to maintain consistency within the application.



Med-fi Must-See List



Hi-fi Must-See List with delete functionality

Violation

[H2-3: User Control & Freedom][3] Unable to view detailed information for any given activity in Travel Agent once it's added to the list.

Changes and rationale

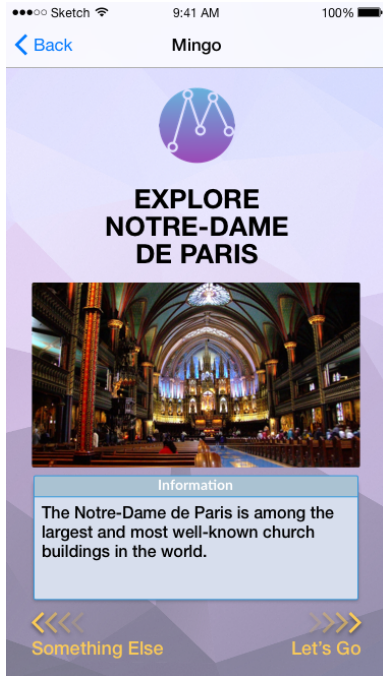
We added functionality that would allow the user to tap on any item on the Must-See list and be taken to the Attraction Information screen. We chose to use arrows to show that the user could tap on an entry in the list to see more information because it is a common technique that would be familiar to users (See above images of Must-See List screens to see the added arrows in the hi-fi prototype).

Violation

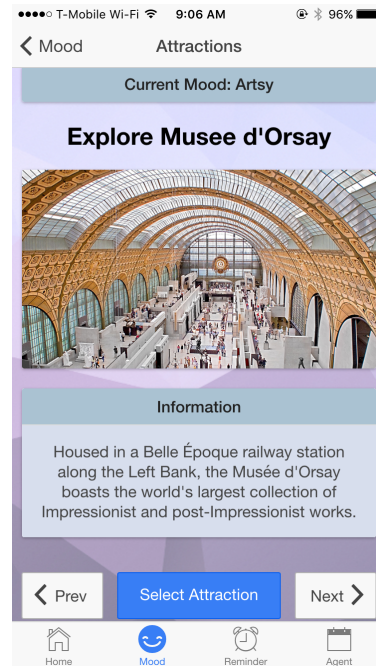
[H2-3: User Control & Freedom][4] Users can only swipe forward to select an activity based on mood, and is unable to go back to a previous activity. Recommendation: allow the user to swipe back and forth, and then tap to select

Changes and rationale

We chose to change the application to allow the user to have access to all activity recommendations associated with a certain mood by allowing the user to scroll through suggested activities and tapping (rather than swiping) to select an activity.



Med-fi: Attraction Recommendation screen requires users to commit to an attraction before seeing all possible suggestions



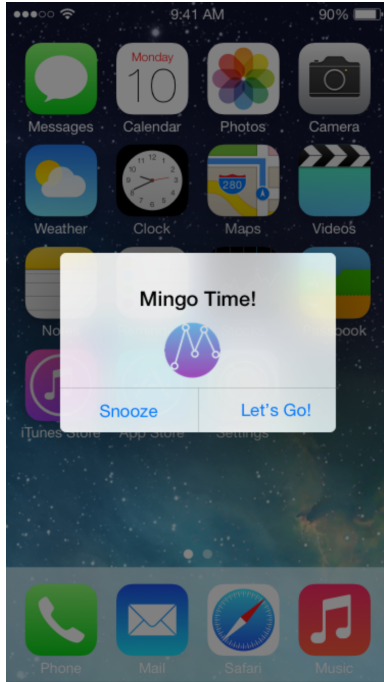
Hi-fi: Attraction Recommendation screen allows users to see many recommendations using the previous and next buttons before they select an attraction

Violation

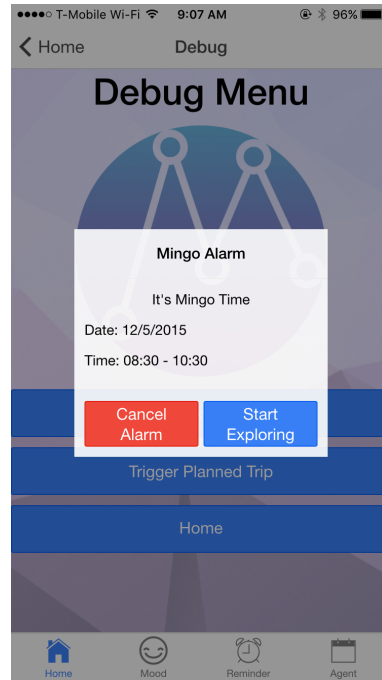
[H2-3: User Control & Freedom][3] The Mingo alarm only gives the user two options: snooze or going to the app. Snooze implies that Mingo will notify the user again in a certain amount of time, which the user may not want.

Changes and rationale

We added a cancel button to the Mingo alarm and we chose to remove the snooze button because we no longer saw a need for the snooze button (given the ease with which a new reminder can be created).



Med-fi Alarm with snooze option



Hi-fi Alarm with cancel option

Violation

[H2-6: Recognition Rather Than Recall][3] The user is unable to store multiple trips.

Changes and rationale

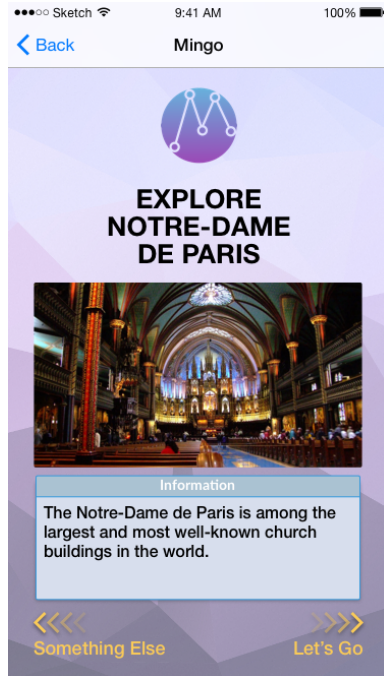
We chose not to allow a user to plan multiple trips because we felt that doing so would go against the spirit of our application. Part of Mingo's mission is to inspire spontaneity, and we felt that being able to plan out more than one trip was too structured. The trip planning functionality was a compromise to allow for (mostly) spontaneous trips without the fear of missing out on certain iconic sites, but being able to plan for multiple trips would go against the spontaneous spirit of the application.

Violation

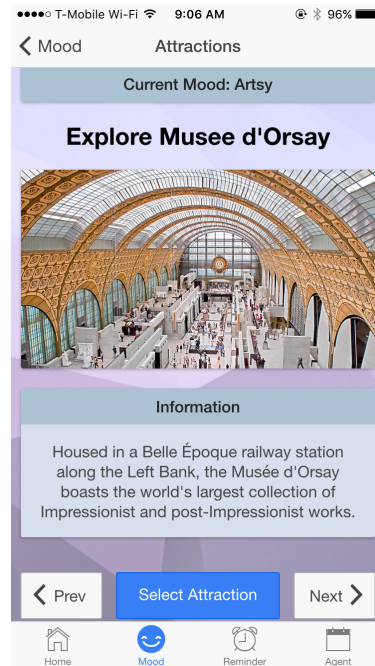
[H2-6: Recognition Rather Than Recall][4] Once a mood is selected, the mood is not visible when the suggested activities appear so the user may not realize they made a mistake and selected the wrong mood.

Changes and Rationale

We added the currently selected mood to the Activities Suggestion screen so that the user would be able to make connections between the activities being recommended and their current mood, and always feel that they were choosing to engage in activities because they *wanted* to.



Med-fi Activities Suggestion screen



Hi-fi Activities Suggestion screen with current mood displayed at the top

Violation

[H2-7: Flexibility & Efficiency of Use][3] Once user clicks 'Edit Trip', user has to go through entire flow to add any changes to the current trip, rather than going right into the 'Must see attractions list.'

Changes and Rationale

We chose not to have 'Edit Trip' go directly to the Must-See list because we wanted to give users the freedom to change locations or dates easily as well. We updated the flow so that the location, date, and Must-See list all appear pre-filled so that the user can more quickly get to the Must-See list if that is the only part of an upcoming trip that needs editing.

Other Changes (All screens have already been posted in the section above)

1. Swiping left and right on the attractions screen has been removed.

In our Medium-Fi prototype, we originally had a Tinder-like swipe function (swipe left for no, swipe right for yes). During the heuristic evaluation, users complained that the feature was unclear, and that we should substitute it for a more basic swipe and tap function (swipe left or right to get another attraction, tap to select), as well as documentation for new users. While we do see the value in having swipe functionality, we feel that the need for documentation detracts from the overall usability of such a features. We therefore decided to do away with the swiping altogether and replace it with something much simpler, namely, left/right and select buttons.

2. For Must-See attractions, browsing attractions has been moved to a new screen.

In our Medium-Fi prototype, users browsed through attractions and added them to the must-see list on the same screen. During development however, we noticed that the lack of screen real-estate on a mobile screen made the attractions themselves hard to see. We therefore moved the browsing to a new screen. Furthermore, we standardized the way that users added attractions to their must-see list in order to simplify the application (users now add attractions to their must-see list in the same way that they normally choose an attraction to visit, with left/right and select buttons).

3. All list and input elements have slight design changes.

Most of the lists and input elements are slightly different in the Hi-Fi prototype (borders, margins, padding, and fonts are slightly different). This is due to the way that Ionic list and input elements look. We felt that the new style of these elements in our Hi-Fi prototype looked cleaner than their Medium-Fi counterparts, and therefore decided against changing them.

Prototype Implementation

Tools

Mingo was designed mainly using the Ionic framework. The Ionic framework is a mobile web-development framework that allows developers to develop hybrid applications (applications that run natively across different platforms such as Android and iOS). These hybrid applications are developed using common web technologies and frameworks such as HTML, CSS, AngularJS, and Apache Cordova (formerly PhoneGap). Ionic also provides a mobile-centric UI library to aid with mobile development and design. Once we were finished with the development, the Ionic framework automatically generated an xCode iOS project which allowed us to both test and deploy the application.

Since our team did not have any previous iOS native development experience, the use of Ionic allowed us to leverage our previous web-development experience and create a more powerful and complete application. Furthermore, since Ionic development is primarily web-based, we were able to use familiar web tools such as Google Chrome's dev tools for debugging.

The main drawback of using Ionic instead of xCode was the lack of the storyboard. xCode provides an extremely useful storyboarding interface for developers to link and test how each screen fits with other screens. In Ionic however, screen linking was done manually (through the use of linking elements and state changing elements in code). In order to cope with this drawback, we used our Medium-Fi prototype extensively as a storyboard to follow (while the content of some screens were changed, very few screens were added or removed between the Medium-Fi and Hi-Fi prototypes).

Wizard of Oz

We used one Wizard of Oz technique in our prototype (you could, however, also consider the hard-coded data another Wizard of Oz technique). Since we did not implement any back-end push service, both our time reminder and trip reminder functionalities did not actually set any kind of alarm. To circumvent this limitation, we implemented a hidden debug menu in order to manually trigger each reminder.

Hardcoded

A lot of elements in our prototype were hardcoded. The locations were limited to San Francisco or Paris. Since we did not have GPS functionality, we hard coded the “detected” location of the app to alternate between Paris and San Francisco as well. Furthermore, all the attractions as well as the list of moods were hardcoded.

What is Missing and Future Plans

Apart from the Wizard of Oz and Hardcoded elements of our application, there were also certain things that were not implemented:

- We did not implement any external app integration, which means that you could not open Apple/Google Maps to get directions (we do have a button that triggers a popup, but nothing happens).
- Once a user sets a trip and starts exploring on the trip, we do not actually have an algorithm for ensuring they actually see all of their must-see attractions.
- Since there is no back-end for the application, all data is only kept for the duration that the app is running, and is lost upon exit.
- The mood search functionality does not display any results

Should we decide to pursue this app further in the future, the first step would be to fix the missing features and implement a complete back-end solution (possibly adding login functionality in order to keep data across multiple users). On a more ambitious note, we have received many suggestions to crowdsource both mood and attraction data. In this sense, we could leverage user feedback and social media content for links between certain mood keywords and attractions in order to generate our suggestions.

Summary

Through the various initial interviews conducted, we were able to pinpoint a common problem among travellers who went on extended trips, namely the phenomenon of “travel burnout”. Our solution to this problem is the Mingo application, which allows travellers to rekindle their interest on a trip by introducing spontaneity. We then proceeded to design and develop this application, refining throughout each iteration, until we were able to produce a final, Hi-Fi prototype that was polished enough for public presentation.