

# Triplt: group travel made easy.

## Team Members:

- Adam Abdulhamid - Lead Engineer
- Ryan Haber - Lead Designer
- Seth Hildick-Smith - Usability Testing Lead
- Eric Peter - Team Manager

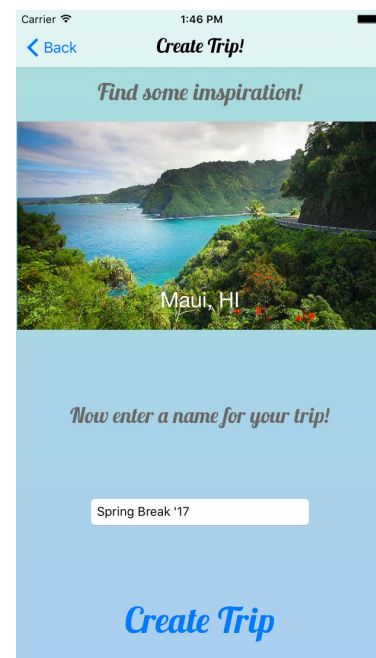
## Problem and Solution Overview

### Mission

Group travel is time consuming and challenging to coordinate even amongst the closest of friends. It is often a logistical nightmare to decide when and where to travel, as friends rarely reach unanimous decision when it comes to travel decisions. Triplt helps friends coordinate the logistics of group travel with minimal time and hassle. Our value statement is to “seamlessly plan and book group travel”

### Approach

Triplt tackles this problem by allowing users to create a trip, invite friends to join the trip. Once the group is established, trip participants vote on the trip features before the app selects and books the best flights using the aggregated preferences.



## Tasks & Final Interface Scenarios

### Tasks

For this problem we identified three core tasks:

1. Create and share a trip  
*Why?* - This task is essential for creating the basis of all trip details and aggregated information. The trip provides a center of communication, decisions, and accumulated details.
2. Select and vote on trip features (locations and dates)  
*Why?* - The two primary components of any group trip are (1) deciding as a group where to travel and (2) when to arrive and depart from the destination. This task allows trip members to collaborate on destination targeting with voting and

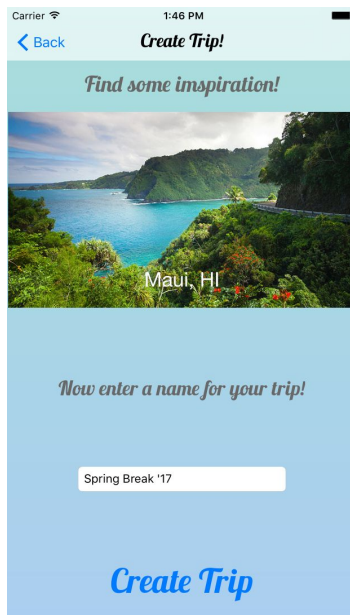
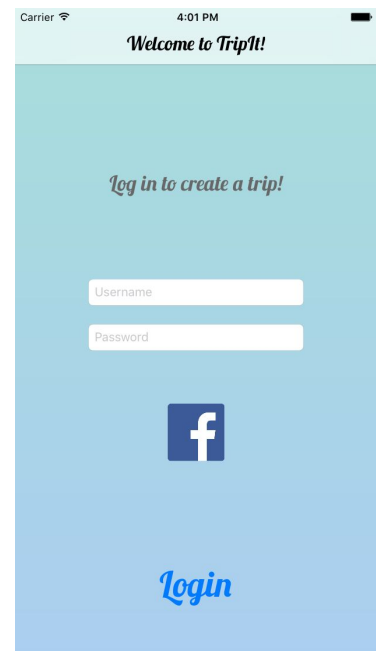
filtered search, while date selection helps users group their flights and payments together automatically.

### 3. Book Flights

*Why?* - Using the information stored in the trip during the group aggregation process, this task helps users find and purchase flights with a focus on group ticketing, and easy cost distribution among members.

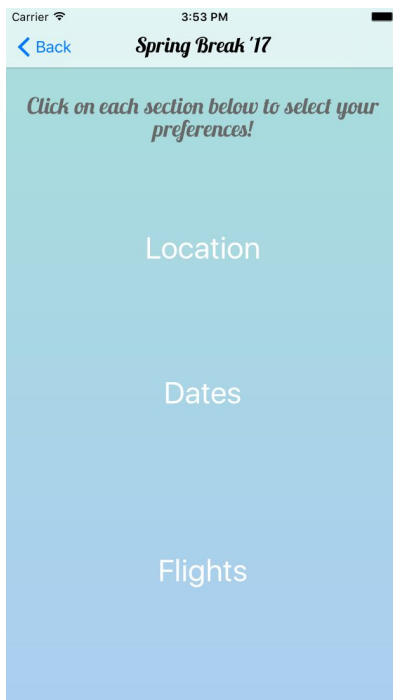
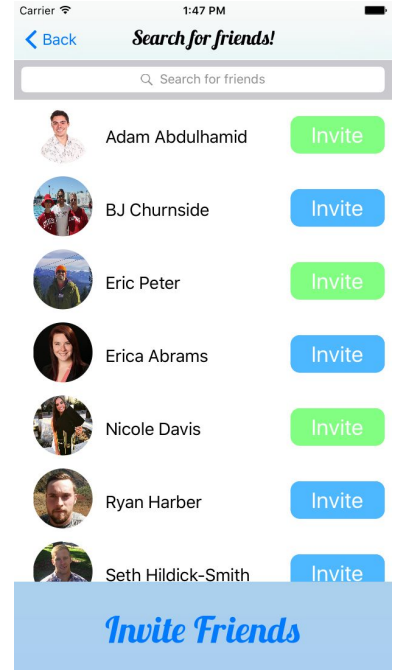
## Storyboarding of Tasks

The first screen is the login screen. You can either enter your username and password, or login through Facebook. Once you click the login button or the Facebook icon it will direct you to the next screen where you create a trip.



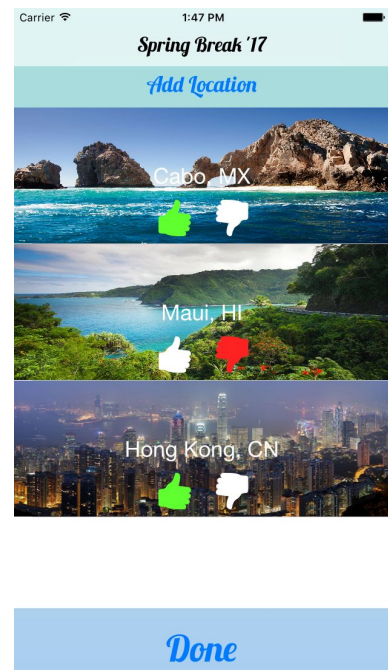
The second screen is where you create the trip. There are some inspirational destinations you can scroll through, and when you're done you can enter the trip name and click the "Create Trip" button to move to the next screen.

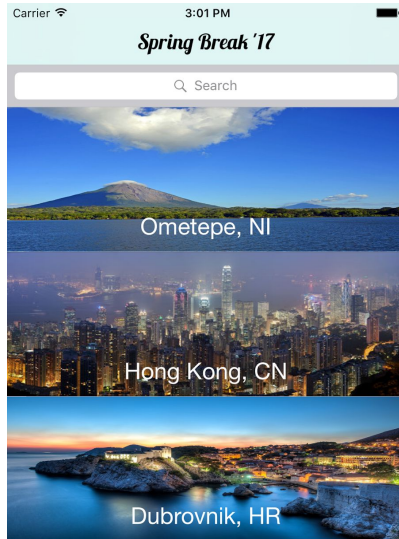
Here is where you can invite friends. You can select the blue button to toggle their invite status, and when you click the “Invite Friends” button at the bottom it will send invited and move you to the next screen.



This is the main menu screen where you vote/select your preferences for all the trip details. Click on any three of the sections below to open the selection screen for that section. Here we click “Location” first and move to the next screen.

Here is where you can vote/add other locations. The add location button takes you to the following screen where you can add locations for your friends to vote on.

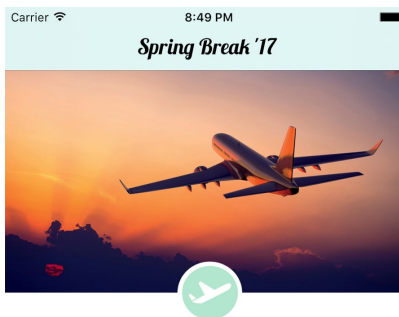
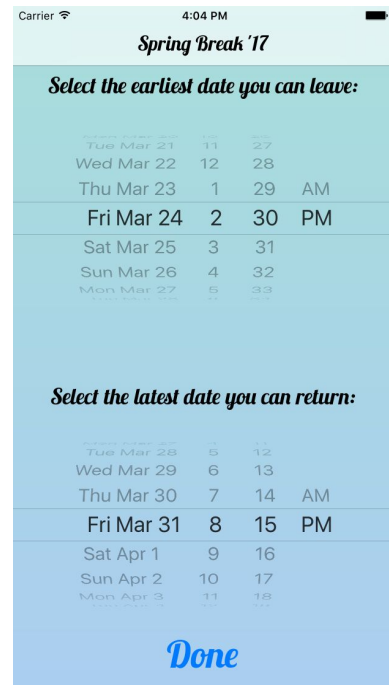




Here we have the add location screen. You can search and select any of the options to add this location to the list your friends can see and vote on. Clicking “Done” from the previous screen will send you back to the menu screen, and we have clicked the “Dates” section already which displays the following screen.



Here we can select the earliest date we can leave, and the latest date we would like to return. Once you select the “Done” button it send you back to the menu screen, where we have already selected the “Flights” section.



The winning location is:  
Cabo San Lucas, Mexico

Departing:  
3/24/17 after 2:30 PM

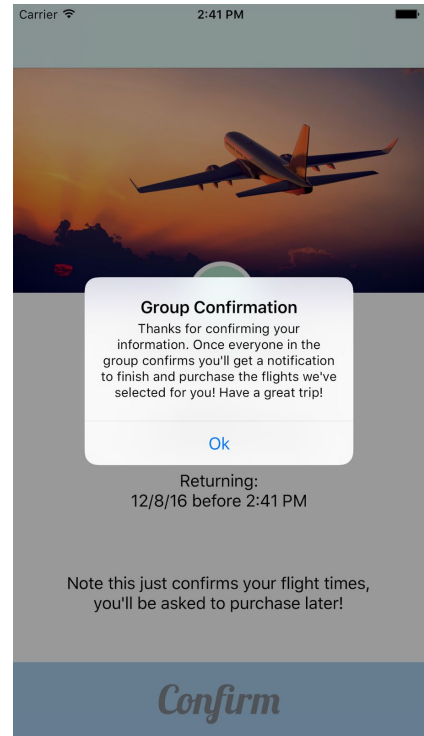
Returning:  
4/2/17 before 10:00 PM

Note this just confirms your flight times,  
you'll be asked to purchase later!

Here you will simply confirm all of the information surrounding your flights. Once you click confirm you will see a dialogue box explaining the next steps in booking the trip.



Here is the last screen you will see. The dialogue box explains that once everyone in the group confirms their own flight information, you will receive a notification asking for confirmation to purchase the flights that best fit the constraints that have been agreed upon. For now this sends you back to the menu screen where you can adjust your preferences if you'd like.

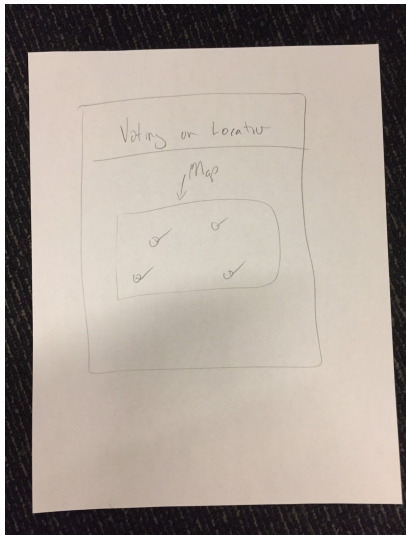


## Design Evolution

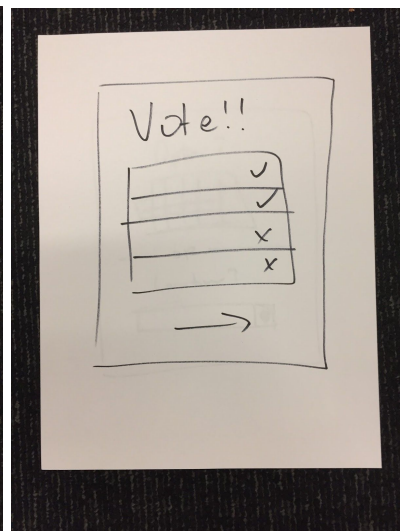
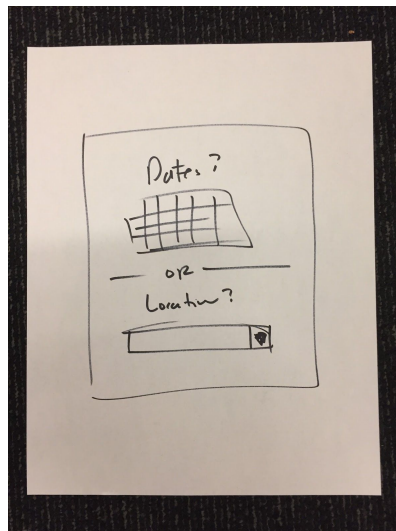
### Major Steps

Here we highlight the design process we took through the lens of task 3: select and vote on trip features. We have included images of from each stage of our design process for this task as well as the reasoning/evidence for changes.

#### Initial prototype sketch:

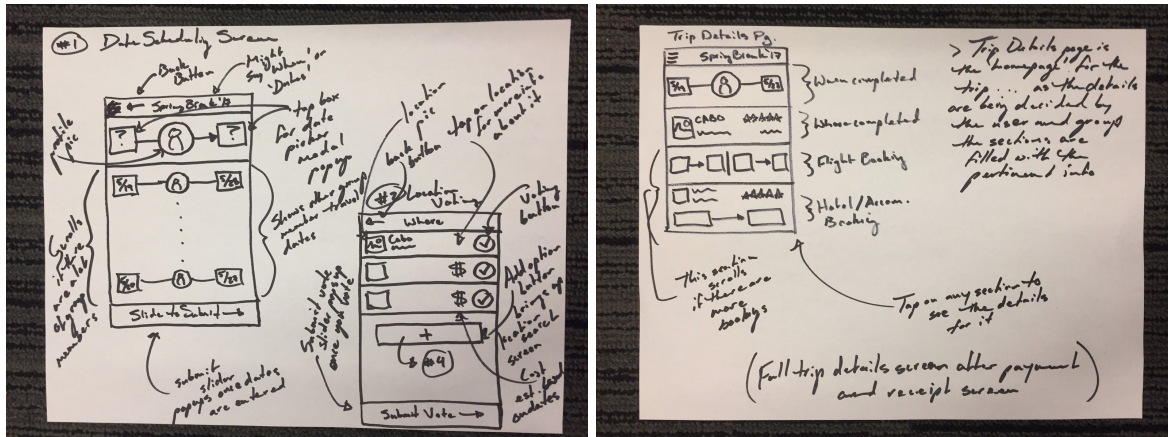


#### Secondary Prototype Sketch:



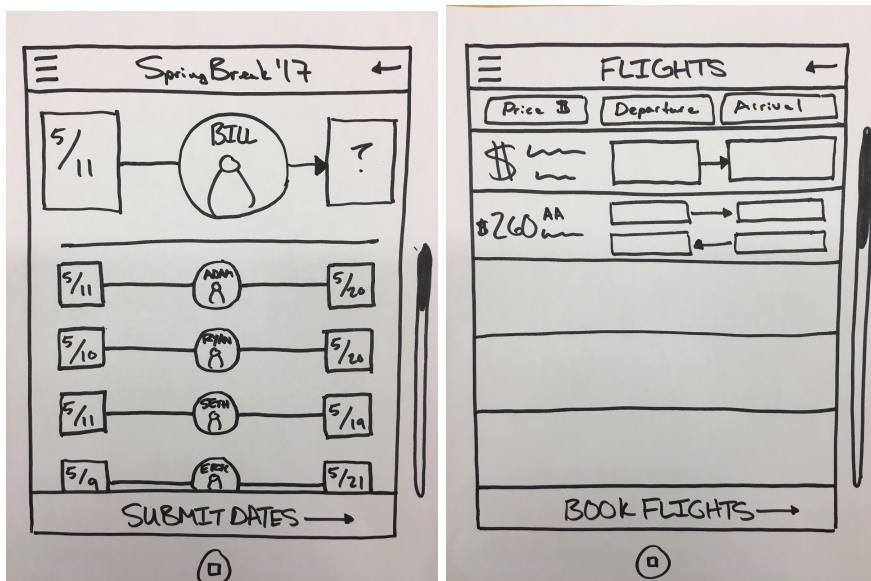


## Tertiary Prototype Sketch:



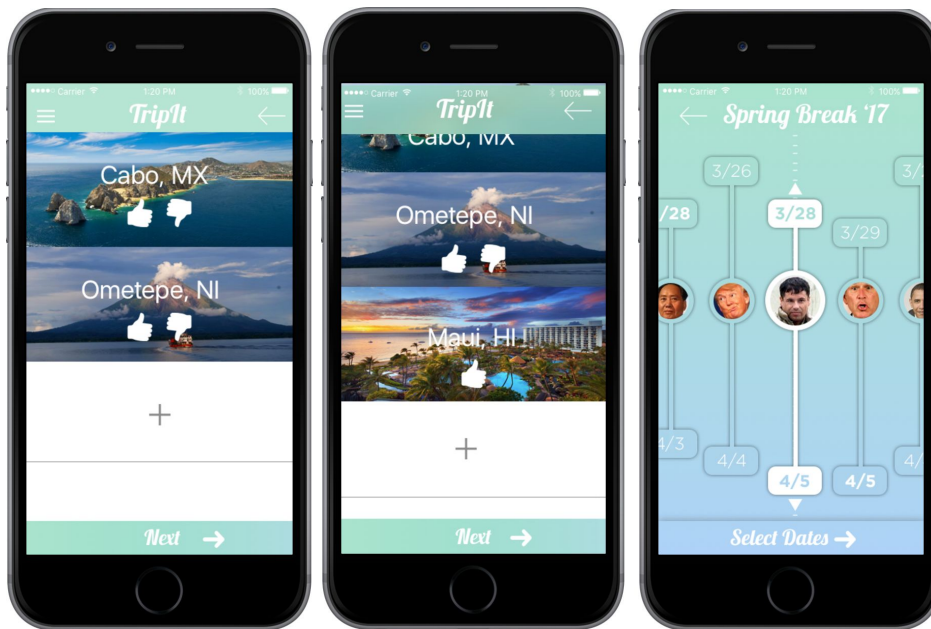
**Rationale Behind Changes:** Here we show the evolution of our initial sketch designs. Between the first and second sketches we resolved the format of location selection. Initially we felt that the interface would be most natural if we used a map to allow the users to select their destinations however we quickly realized that a map is too accurate in some cases and hard to search. Thus the second sketch we used text input. On the third prototype we fleshed out exactly the structure and flow of the feature selection process. One notable change we made was that the calendar date picker was substituted for a “time slider” interface. We made this change to challenge the datepicker status quo, through discussion within our group, this new interface seems more natural.

## Lo-Fi Prototype:



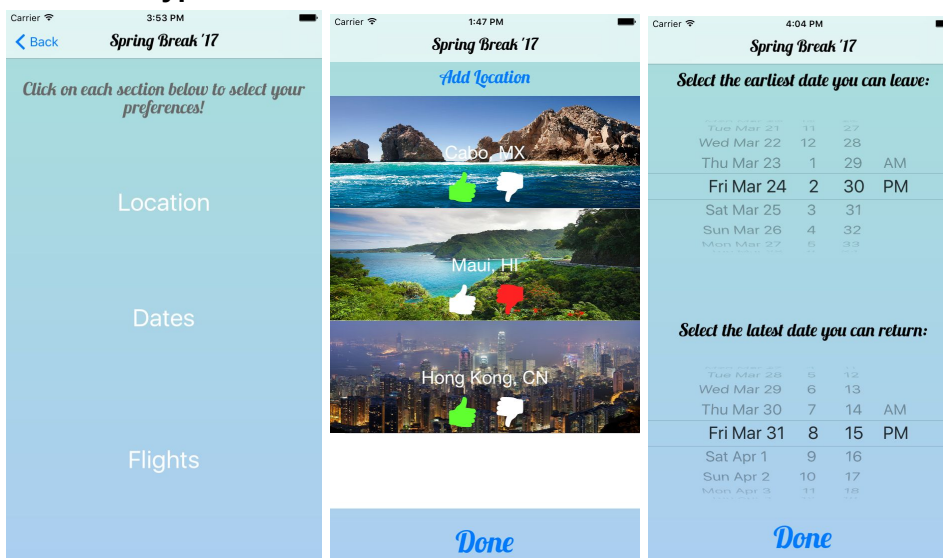
**Rationale Behind Changes:** Between the third sketch and the lo-fi prototype we made minimal changes, the fundamental change was to make the design specification into a clean and clear design for user testing.

## Medium-Fi Prototype:



**Rationale Behind Changes:** After user testing on several representative users, we found that our voting process was not intuitive in our paper lo-fi prototype. To resolve this in our medium-fi prototype we made very clear thumbs-up and thumbs-down buttons over images of the destination cities. Furthermore, users found that the horizontal sliders provided little clarity on which slider they could control. This was resolved by making the sliders vertical.

## Hi-Fi Prototype:



**Rationale Behind Changes:** Between the medium-fi and high-fi prototypes, we took the step of asking our peers to apply Nielsen heuristic evaluation to our design. In the selecting and voting on trip features task, our evaluators found two violations: a H2-10: Help & Documentation /

Severity 4 violation that there is not enough explanation around the location and date screens and a H2-8: Aesthetic & Minimalist Design / Severity 3 violation on the date screen being too complex. We fixed the first issue by adding more text to the context screen and the second violation by changing the date selection to a more traditional datepicker ui element.

## Major Usability Problems Addressed

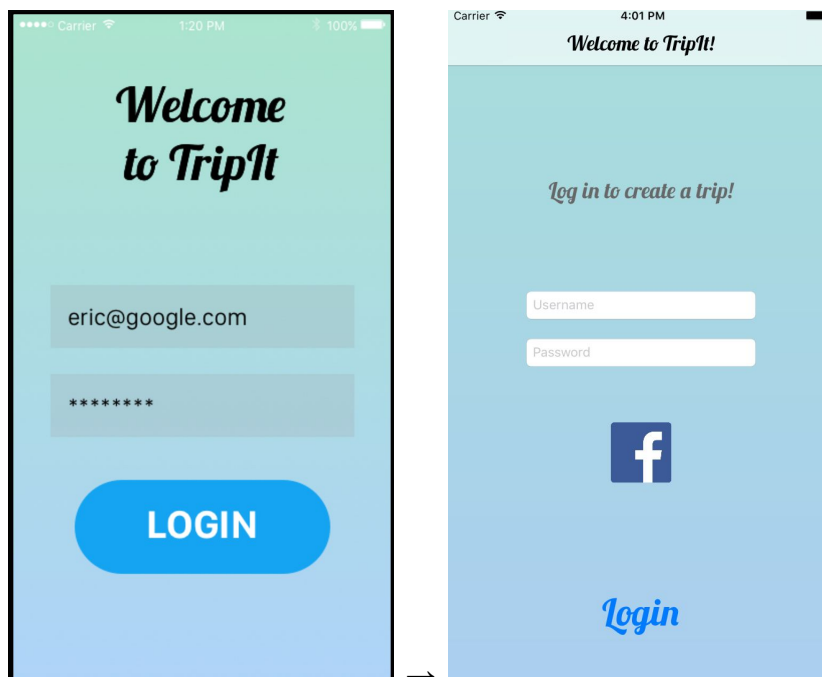
Through our design iteration process we used Nielsen Heuristic evaluation to assess our design after several iterations of user testing. Our heuristic evaluators found 9 severity 3 and 4 violations. These violations are listed below with the tester's original description. We have split the violations into groupings by the task the error was found in.

### 1. H2-1: Visibility of Status / Severity 3 / Found by: C

*At the login screen there is no indication as to what the user is logging into and why. The system should always keep the user informed as to what is going on. This can be remedied by including a short five-word description and a reason to logging in.*

**Solution:** Added simple explanation: "Log in to create a trip"

### Before & After:



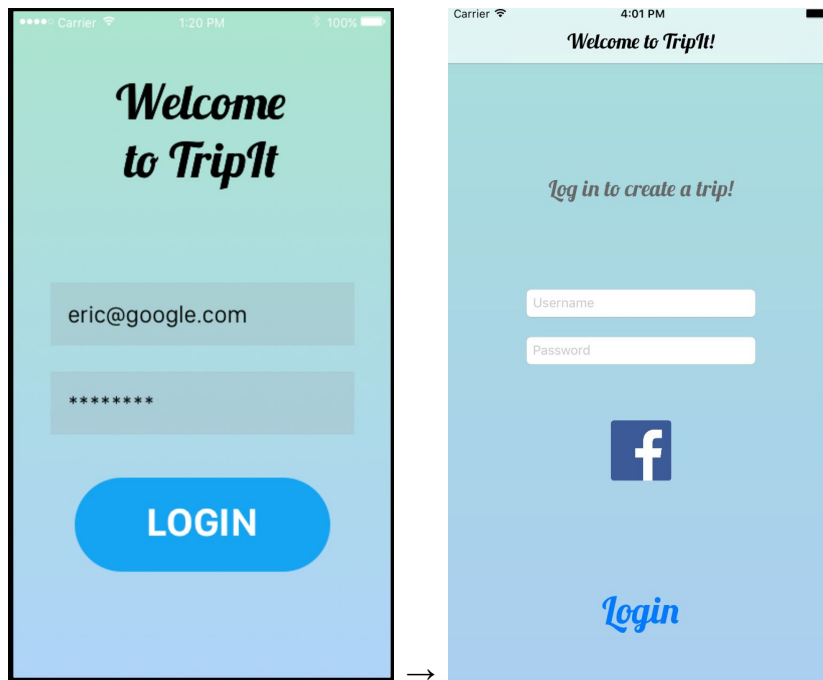


2. H2-7. Flexibility and efficiency of use / Severity 3 / Found by: B

The user should have the possibility to connect through some famous social network (facebook, twitter, etc... ) in order to avoid the struggle of typing his email address and figuring out a password. The solution is simply to add a “connect through facebook” button

**Solution:** Added ability to login through Facebook.

**Before & After:**

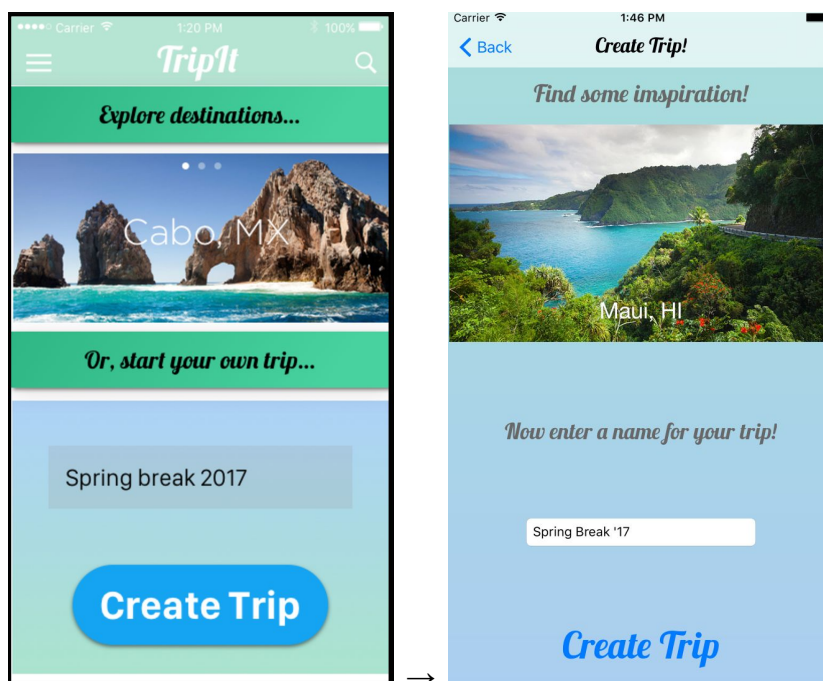


3 . H2-1. Visibility of system status / Severity 3 / Found: B, C

It is here unclear what to type. The Readme helps to understand that it is about naming the trip, but what if we are choosing a destinations like suggest the first title "Explore destinations.."? The designers should make this first page clearer, by separating the destination choice and the trip naming phase.

**Solution:** Added wording to indicate photos were for inspiration and added description above "trip name" text field.

### Before & After:

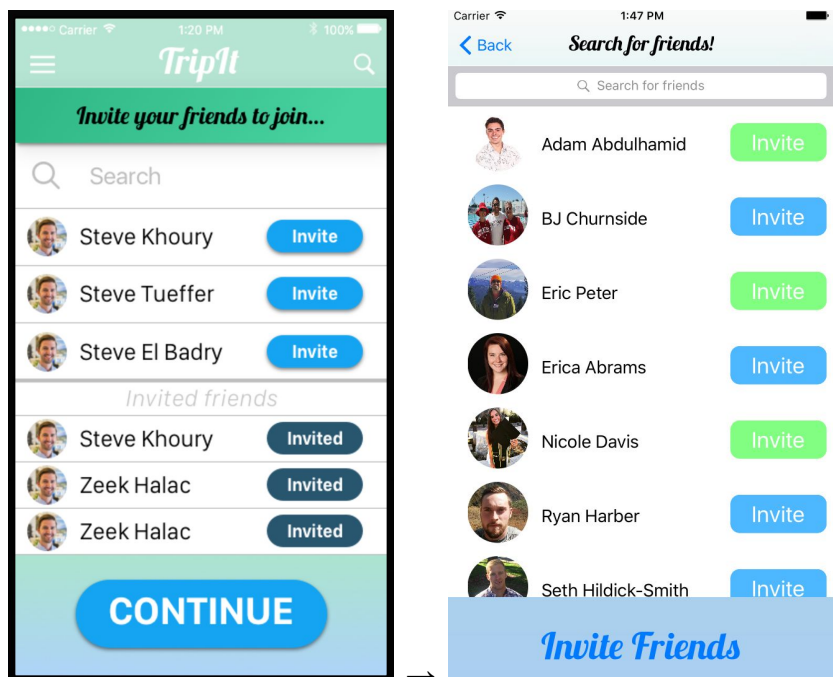


4. H2-8: Aesthetic & Minimalist Design / Severity 3 / Found by: C

When all the friends are chosen and the invite is clicked, the friend display page becomes cluttered and hard to read. Making the friend display page more minimal can solve this. For example, once invite is clicked, the invited friends can be displayed on another page.

**Solution:** Simplified the design to only have one section and clear distinction between “invited” and “not invited.”

**Before & After:**



5. H2-2. Match between system and the real world / Severity 3 / Found B

Which friend are we talking about, is it directly linked to my contact, should I add their email. If I connect through facebook, could it be my fb friends?

Make the steps clearer, not in the app but in the readme about the different options.

**Solution:** Clarified in read me; this is an artifact of medium-fi prototype, as the actual app would have the user's contacts list so therefore it would be clear as to the source.

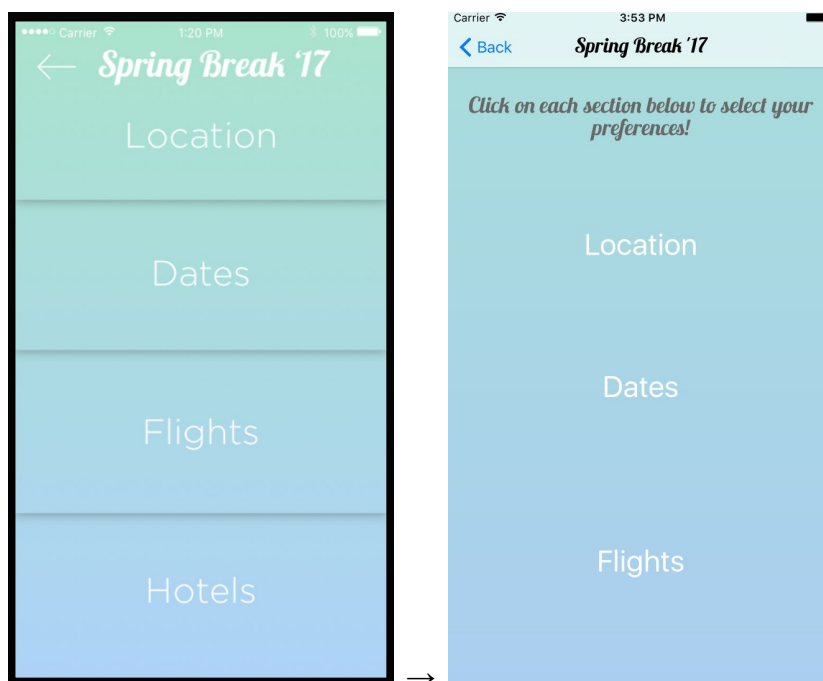
**Before & After:** No screenshots as this issue was addressed in the readme by adding the text: “Contacts are “wizard-of-oz’d” and in the real app would be your actual contacts”

6. H2-3: User Control & Freedom / Severity 4 / Found by: B, C

*After the messages are sent to the group of individuals who are picked, there is no way to go back and add people to the group. There needs to be a button that allows the user to go back and add individuals rather than going all the way back to the ‘create trip’ screen.*

**Solution:** Added ability to go back and add additional friends.

**Before & After:** Note, in the original design, the back button went to the “Create trip” screen and now it goes to the “Invite friends” screen.

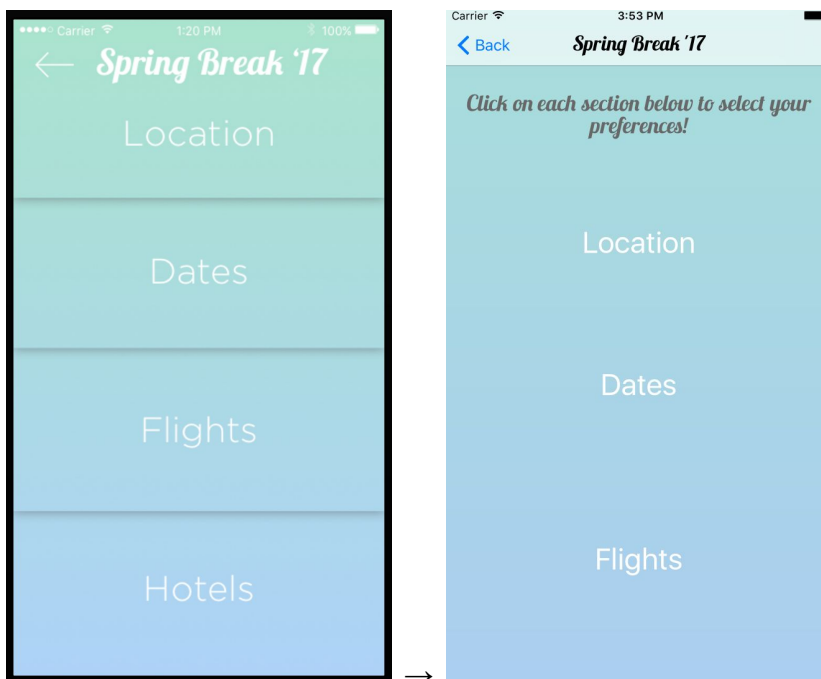


7. H2-10: Help & Documentation / Severity 4 / Found by: A, C, B

*There should be more explanation around the location and date screens. The user is jumped into these screens without explaining what purpose they serve. An explanation prior to each one of the screens would be highly beneficial.*

**Solution:** Added help text at the top of the page to clarify what the user should do on this screen.

**Before & After:**



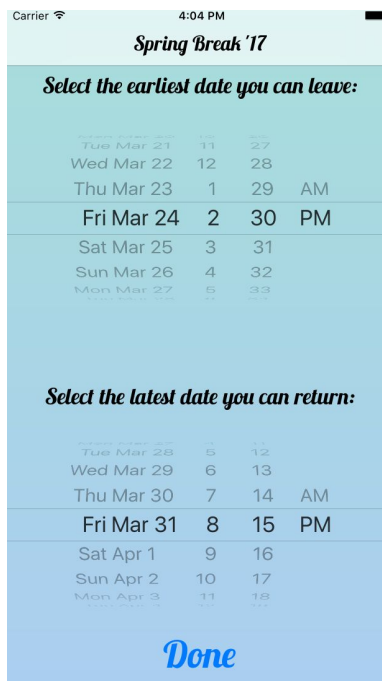
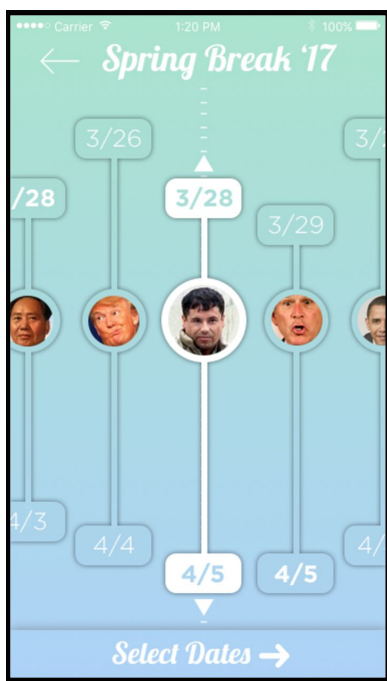


8. H2-8: Aesthetic & Minimalist Design / Severity 3 / Found by: B, A, C

Although the date screen design looks nice, it is hard to read, as the design is too ambitious. A simpler calendar design or different type of relative timeline would be better. Also, using the greater than sign when showing the dates selected is confusing. A simpler hyphen would look better and serve the purpose.

**Solution:** Improved the date selection screen by using native UI elements (e.g., DatePicker).

**Before & After:**



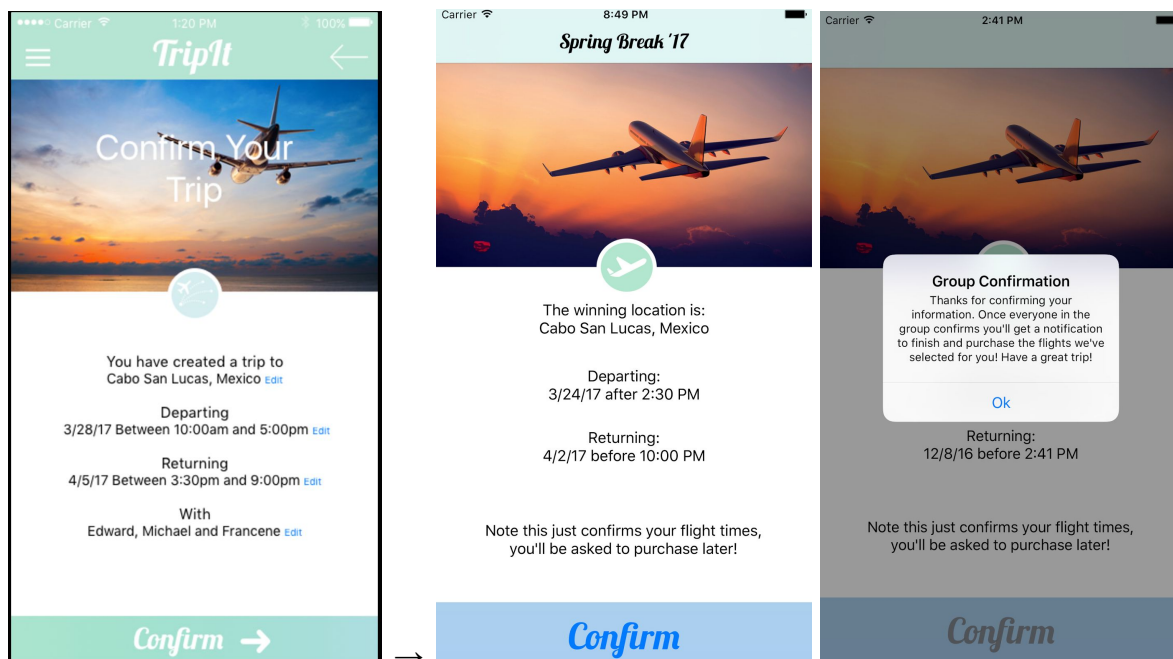
### 9. H2-5. Error prevention / Severity 4 / Found by: B

Really scary, now I haven't even gave my bank or credit card number, or even had displayed the options I wanted to check, and I'm purchasing something

A lot of steps have been skipped here, the consumers might feel trap or robbed. Need 3 intermediate steps and most of all A GLOBAL CONFIRMATION FROM THE GROUP.

**Solution:** Added an additional confirmation screen before flights are booked. After the user confirms, they are told to wait for their friends to also confirm before being prompted to actually book the flights.

#### Before & After:



## Prototype Implementation

### Tools

Throughout the process of developing our hi-fi prototype we used two primary tools:

- Xcode Interface Builder
  - Used storyboard to create UI's and hooked everything up to custom subclasses

- Github
  - Version control so all team members can contribute

## Wizard of Oz

The proposed backend to this app is fairly complex. If this app concept was taken to the next step, there would have to be much give and take between users about a shared “trip” object as well as complex optimization code required to select and book a flight that meets the user’s constraints. All of these features have been “wizard-of-oz’d,” the app has no back end to speak of. We have built our prototype to simulate a back end with “wizard-of-oz’d” interactions with other users and flight booking.

## Hard-coded Data

Much like the “wizard-of-oz’d” backend, we chose to hard-code some data for the app interface. All the “friends” that a user can invite are hard coded and have no relation to the user’s facebook friends or contacts. This decision was made to simplify the prototyping process and to ensure that each friend had a photo associated with them.

## Next Steps

The next steps that the project will have to take to become a fully formed app and not a prototype are fairly clear. We need to implement the missing backend and remove all hard coded data. The backend implementation will require three major steps: user management and login logic and data storage, user interaction logic (sending invitations, interaction with the shared trip), and flight booking. The most logical plan would be to tackle those problems in the order that they are listed as the last task is not required for a functional and useful app (we could direct the user to select their flights independently).

## Summary

We set out to solve the problem of group travel booking, a process that is a nightmare as anyone knows who has tried to book a trip for more than a handful of people. Our basic approach was to allow users to collaboratively build constraints to the trip and then have the app book the flight for all participants. We broke our user experience into three tasks and then applied iterative, user based interface design to arrive at a final high-fidelity prototype that took the form of a iOS app with several “wizard of oz’d” features. Going forward our project will require primarily backend development to facilitate user management and interactions as well as optimization of flight booking.