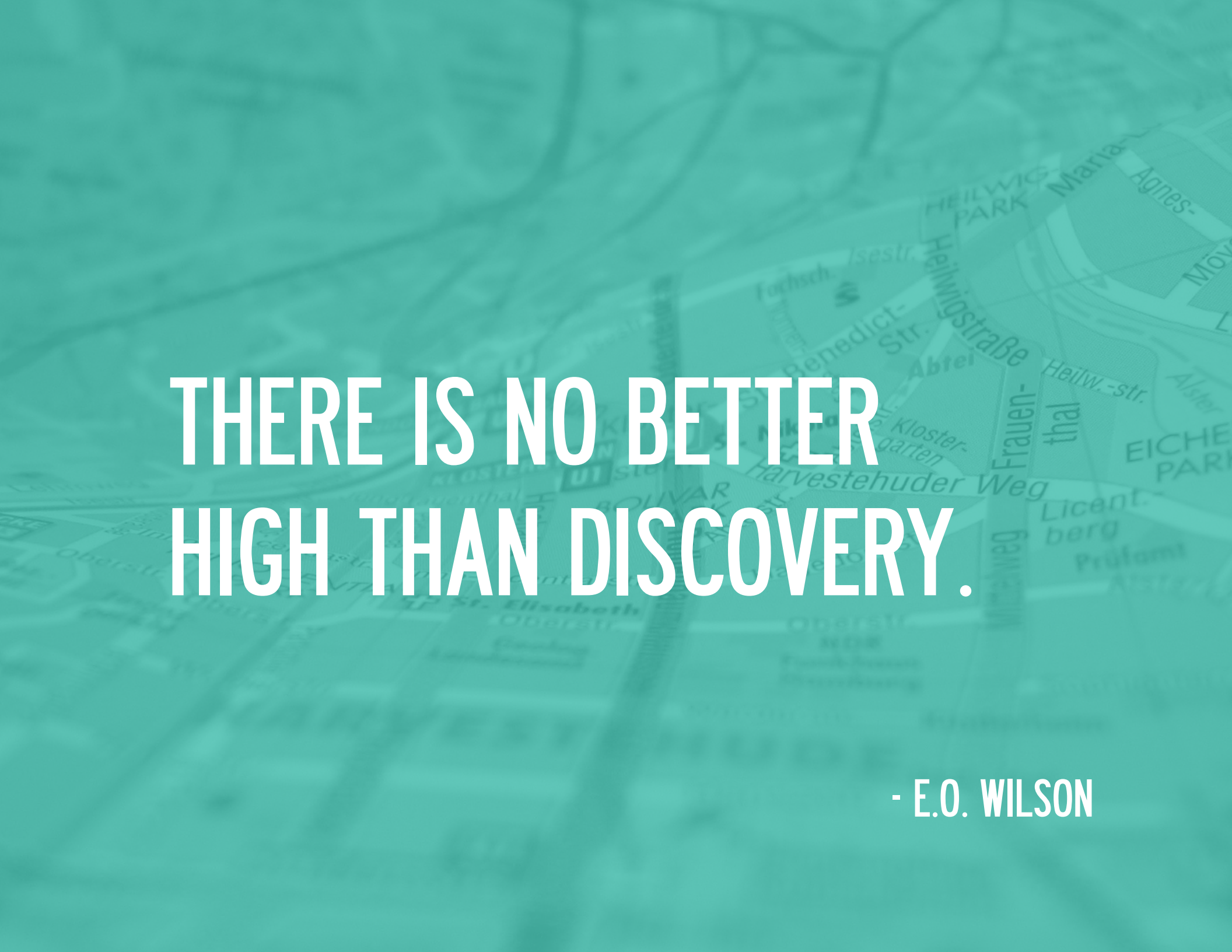
DISCOVER THE WORLD

with

WANDERLUST

To the travelers, for inspiring us to
look beyond what we may know.


THERE IS NO BETTER
HIGH THAN DISCOVERY.
- E.O. WILSON

EXECUTIVE SUMMARY

Background and Research

Expedia was inspired by the idea of discovery and wondered how it could make travel planning more delightful. In the spring, we conducted several months of user research to see how people plan travel and interact with discovery services. Our methods included **contextual interviews, journal studies, guerrilla interviews, and joy visits.** From our data, we were able to distill three key insights. See page 8 for more details on our user research.

Design

Following our research, we began an iterative process of designing and user testing that continued through the summer. We completed **eight iterations across three different concepts**, steadily increasing fidelity and refining our product based on user feedback from testing. We have reached a product that provides a delightful discovery experience and helps people plan activities for their trips. See page 34 for an overview of our iterations.

KEY INSIGHTS FROM USER RESEARCH

Exploring

Exploration is more enjoyable when the content is relevant, but there is still a desire for something novel.

Planning

Confident researching and organizing make travel planning more delightful and less stressful.

Sharing

Experiences are better when they are shared with others, but coordination between people can be difficult.

Product

We have created a mobile web application called Oliver, which **features an intelligent facilitator named Oliver who aids discovery, planning, and collaboration through three connected modes**.

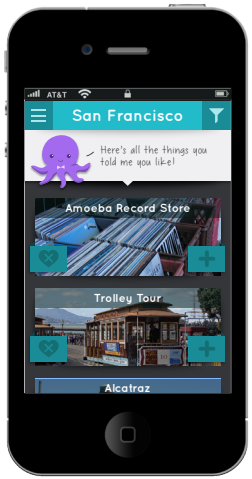
Discovery allows a person to explore and evaluate new activities, which teaches Oliver about their preferences. Favorites mode saves a list of activities a person has saved, and lets them build an itinerary from that list. Itinerary helps people organize activities for a trip, and eases collaboration by allowing shared itineraries, commenting, and suggestions for activities the entire group will like.

In all modes, Oliver waits at the top of the page, offering advice and help.

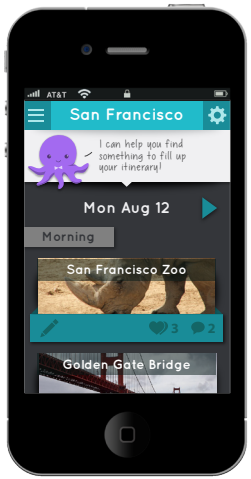
See Chapter 2 starting on page 22 for more details about the application concept and interface.

Oliver makes travel planning delightful through personalized discovery and easy-to-use collaborative itineraries.

DISCOVERY

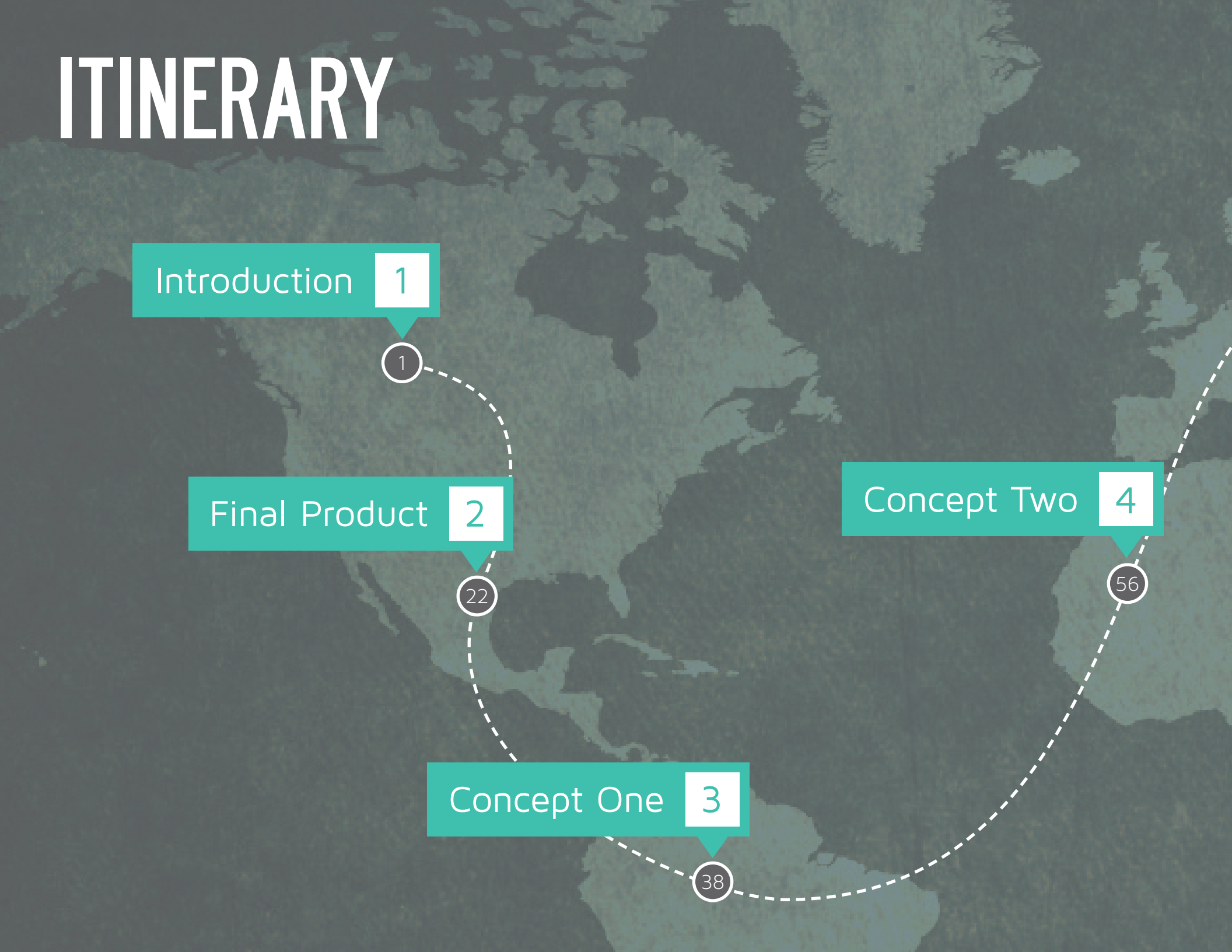


FAVORITES

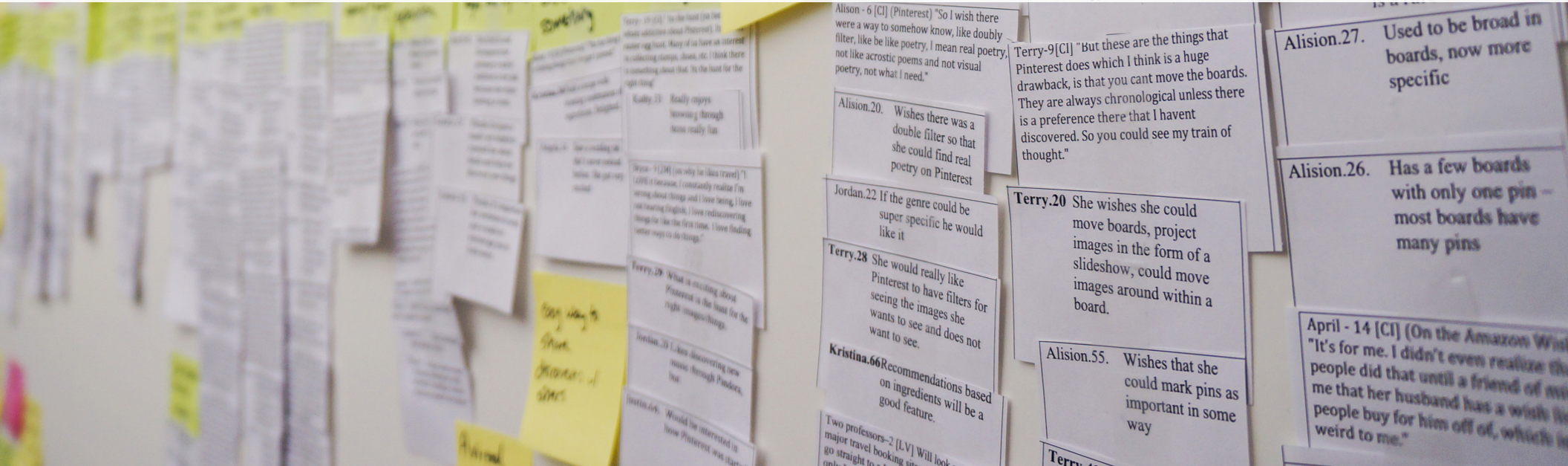


ITINERARY

ITINERARY


Introduction 1
1
Final Product 2
22
Concept One 3
38
Concept Two 4
56

INTRODUCTION



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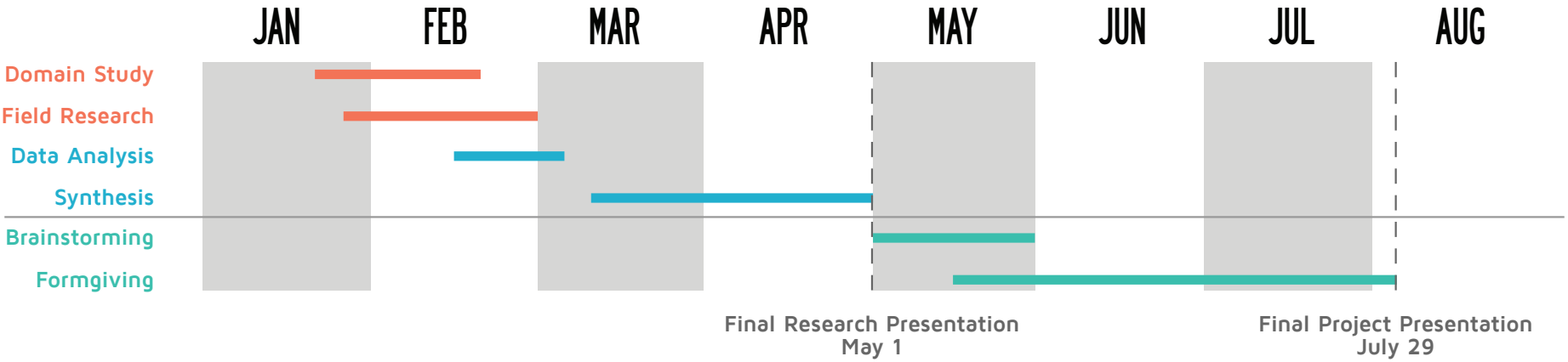
TIMELINE

Research ▶ Analysis ▶ Design

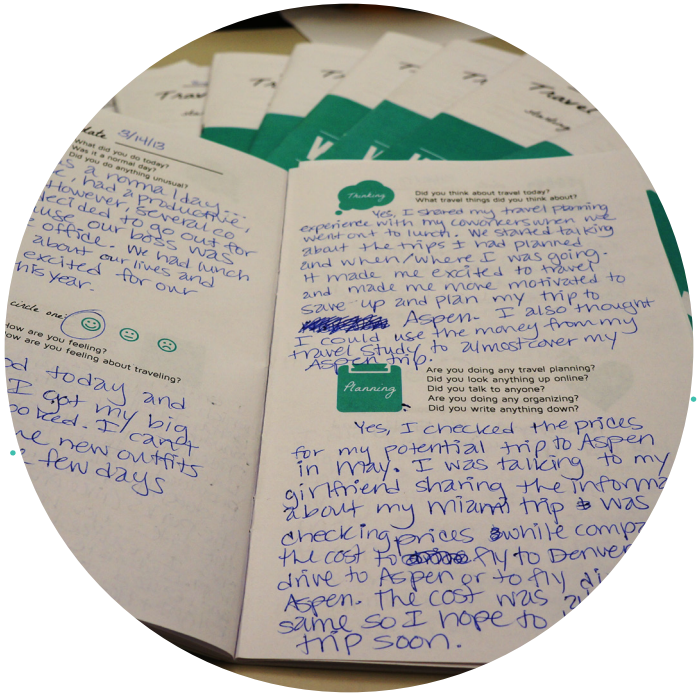


During the spring, we focused on user research and domain studies in order to determine the main issues that people face when planning travel.

The summer consisted of visioning and brainstorming, followed by an iterative design cycle of prototyping, testing, and refinement.

SPRING RESEARCH

We began our project by conducting four months of user research, including journal studies, contextual interviews, and guerrilla interviews. We found three key insights and five travel planning stages. We also constructed eight travel planning profiles outlining how different people move through the stages.


Thinking
Did you think about travel today?
What travel things did you think about?
Planning
Are you doing any travel planning?
Did you look anything up online?
Did you talk to anyone?
Are you doing any organizing?
Did you write anything down?

PROPOSAL

Client

Our client, Expedia, is the world's largest travel agency. For years, Expedia has been finding ways to allow people to book their travel more easily, quickly, and economically. Expedia now sees an opportunity to further help people book travel by finding an entirely new way to connect with travelers through discovery.

Within Expedia, our team worked with the Global Design and User Experience team.

Focus Questions

1. Is there an opportunity to link discovery experiences with real-life travel experiences?
2. How can we quantify delight and habitual activity?
3. How can we encourage people to start planning travel earlier?

HUNT STATEMENT

To engage travelers through habitual discovery, delightful planning, and confident decision-making.

USER RESEARCH

Methods

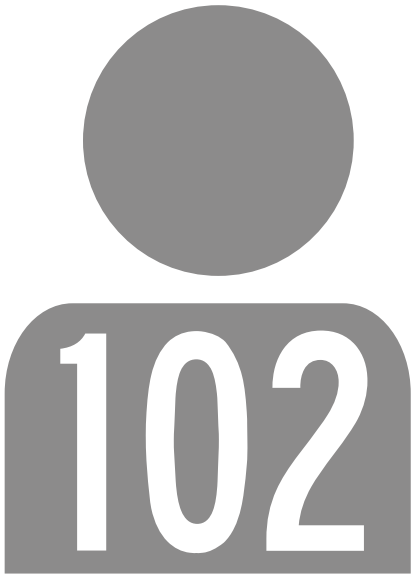
Once we had a thorough understanding of the problem space, we went out into the field to observe how people interact with travel and discovery services. We chose four methods designed to give us the most complete view of how people find new content and plan travel. Thousands of data points were collected through journal studies, guerrilla interviews, contextual interviews, and joy visits.

Synthesis

After we had collected our data, our team worked to unearth the overarching themes. We synthesized the information by creating an affinity diagram. For this, we grouped data by similarity, and then placed it into a hierarchy of trends. Our key insights from this synthesis are detailed on the next page.

In addition, we created timelines from the completed journals to show the trip planning strategies that people employ. We used these to construct travel planning profiles based on the daily travel activities of each participant. The profiles are also explained further in this chapter.

For more details on our methods and synthesis, see our spring report, *The Journey for Insights*.



GUERRILLA INTERVIEWS

CONTEXTUAL INTERVIEWS

JOY VISITS

2-MONTH

2-WEEK

1,652 MILES

ORLANDO

3,845 MILES

LAS VEGAS

KEY INSIGHTS

Exploring

Exploration is more enjoyable when the content is **relevant**, but there is still a desire for **something novel**.

Planning

Confident researching and organizing make travel planning more delightful and **less stressful**.

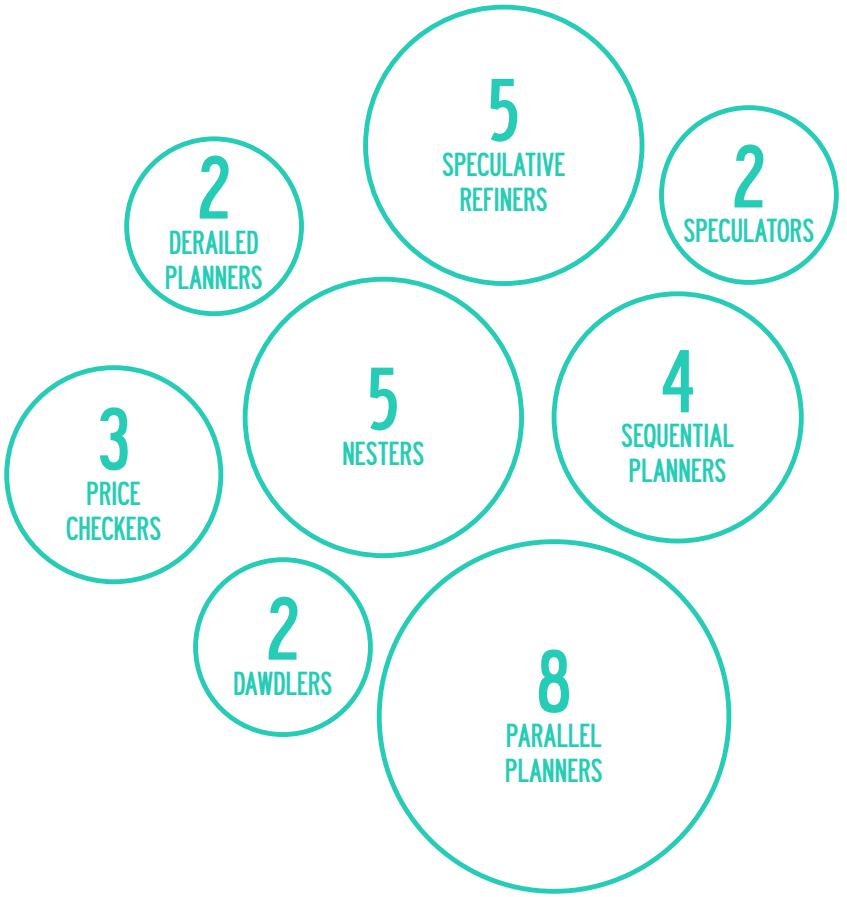
Sharing

Experiences are better when they are **shared** with others, but **coordination** between people can be difficult.

TRAVEL PLANNING PROFILES

In addition to the key insights, we thoroughly investigated our journal responses to look at the ways in which people plan travel. From that data, we distilled eight travel planning profiles, which are based on common trip planning strategies that people employ. We placed special focus on the various ways people divide planning into phases and the ways in which people plan multiple trips simultaneously.

We also identified five stages of travel planning that people go through. People in each of the profiles go through the stages in different ways, but every person goes through all the stages. These stages are outlined on the next page.



PLANNING STAGES

These are the five stages found in the travel planning process. People in all profiles go through these stages, but the order and time spent on each is variable. We have included quotes from our user research participants below each stage. More details and evidence for these can be found in our spring research book, *The Journey for Insights.*

SPECULATING

In this phase of travel planning, a trip is just an idea. Travel ideas are very loosely formed and it is not certain whether actions will be taken to actually plan a trip.

"This cost comparison thing is something I struggle with all the time, because I have a list of a million places I want to go."

REFINING

This is the phase where a person begins to work out the logistics of their trip. For most people, this involves talking to others who will be traveling with them and setting specific dates for a trip. Typically, this phase includes coordinating with other people.

"We're just trying to coordinate all that. Like when can we go, who has these dates, so there's been some back and forth. Like we'll start, everyone will get all hot on it, and then nothing happens."

INVESTIGATING

Once this phase is reached, a trip is being actively planned. A person is looking up flights, hotels, or other information and comparing prices, amenities, and rewards. Currently, this is the phase where people would begin consulting travel sites such as Expedia.

"I fumbled around all of the sites and tried Priceline and realized that the prices are cheaper but they add fees on at the end. So some sites list prices with fees and some list them without."

BOOKING

This is the point in the process where the person commits to a trip in some way, typically by purchasing a flight or reserving a hotel.

"I look stuff up on Expedia, but then I go directly to the sites to book because I don't necessarily trust it."

NESTING

During this phase, the person gathers information and resources they will need for their trip. This could involve looking up activities to do while traveling, asking others for recommendations, or organizing information such as confirmation numbers and itineraries.

"I want to do the touristy things but I wanna know the cool local stuff, too."

VISIONING

In order to move from research findings to design, we completed a number of visioning activities. We began this process by walking our affinity diagram and ideating widely. We also held a visioning workshop with our clients and worked to define our scope.

INITIAL VISIONING

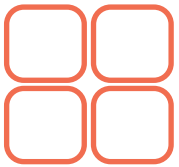
We began our visioning at the end of the spring semester by going through our affinity diagram and findings and ideating as a team. We then voted on those ideas to pare them down to our ten most viable ones. From there, we elaborated on the ideas and created a storyboard for each one. We shared these storyboards with our journal participants and received initial feedback.

We received especially positive feedback on our ideas that involved collaboration with friends and family. Participants confirmed that this is currently very difficult for them, so **having a system that facilitates collaboration would be helpful when planning.** Tools that help with research, such as a **price history tracker, also received positive responses** from participants.

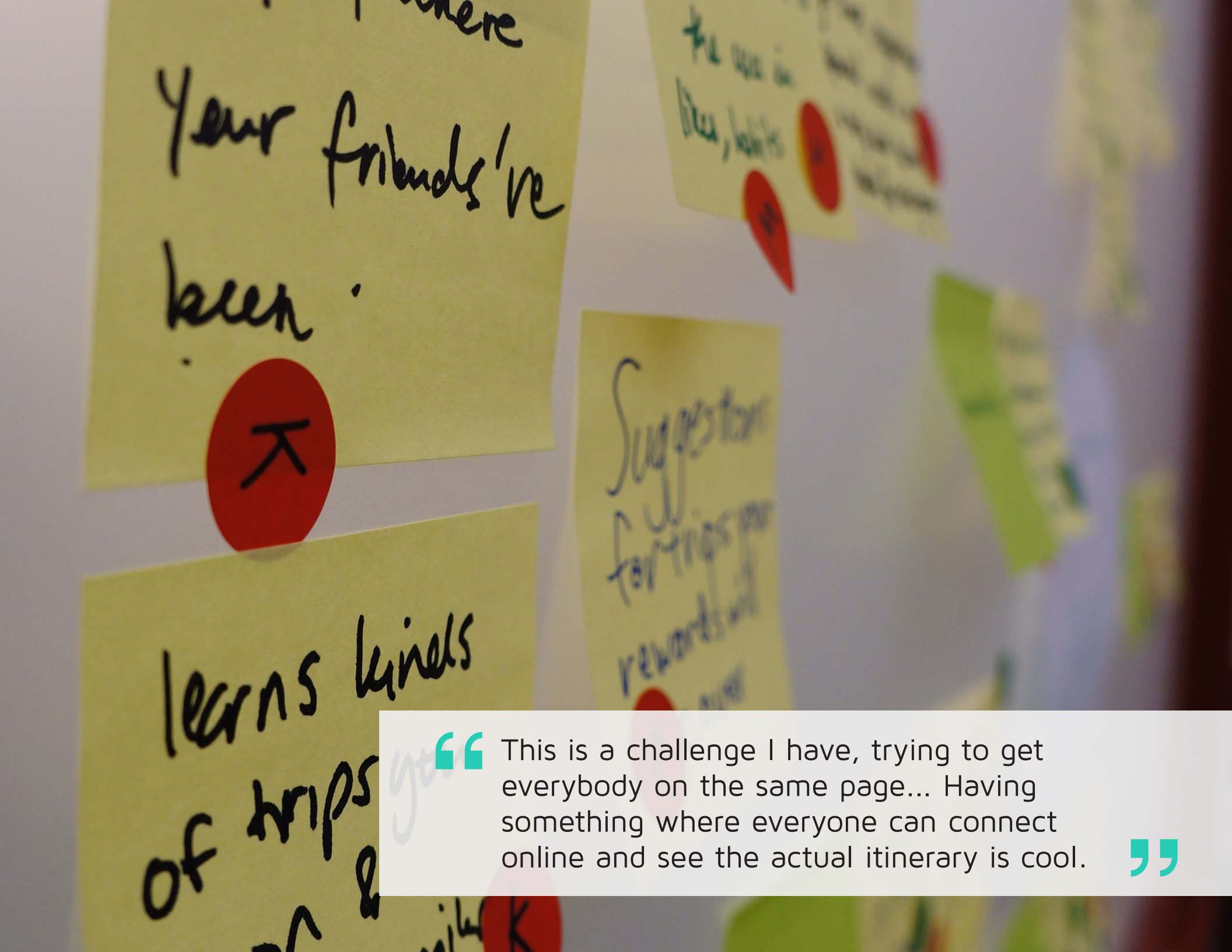
We kept this feedback in mind as we moved forward to more detailed brainstorming and prototyping of our ideas.

stats

78 INITIAL IDEAS



10 STORYBOARDS



> This is a challenge I have, trying to get everybody on the same page... Having something where everyone can connect online and see the actual itinerary is cool.

VISIONING WORKSHOP

When our clients visited at the beginning of May, we spent several hours collaboratively visioning with them via innovation activities from the book *Innovation Games: Creating Breakthrough Products through Collaborative Play*. We selected two activities: Spider Web and Pruning the Tree. These helped us to set the stage for moving forward over the summer.

Spider Web

For this activity, we created a web with our service at the center. We then took turns writing down other travel and discovery services, connecting them to the center with lines and arrows. The items on the web included both services that we would collaborate with and compete against. This gave us an understanding of where our proposed product would fall in the ecosystem of travel planning services.

Pruning the Tree

We created a tree with a trunk and three branches, one for each of our main findings - exploring, planning and sharing. We individually wrote features on sticky notes and placed them on the tree. Afterwards, we went through as a group and "pruned" the tree, moving features around based on their importance to our service. The features that we felt were most core to what we would create were closest to the trunk, and the ones furthest away were least important. In the end, we came to the conclusion that we could either focus on a holistic experience that would help with all three areas, or we could focus on just one "branch" of our tree.


Pinterest
Airlines
Expedia
WANDERLUST
Groupon
Tripadvisor
Jetsetter
Tuver

SCOPE DEFINITION

User Journey

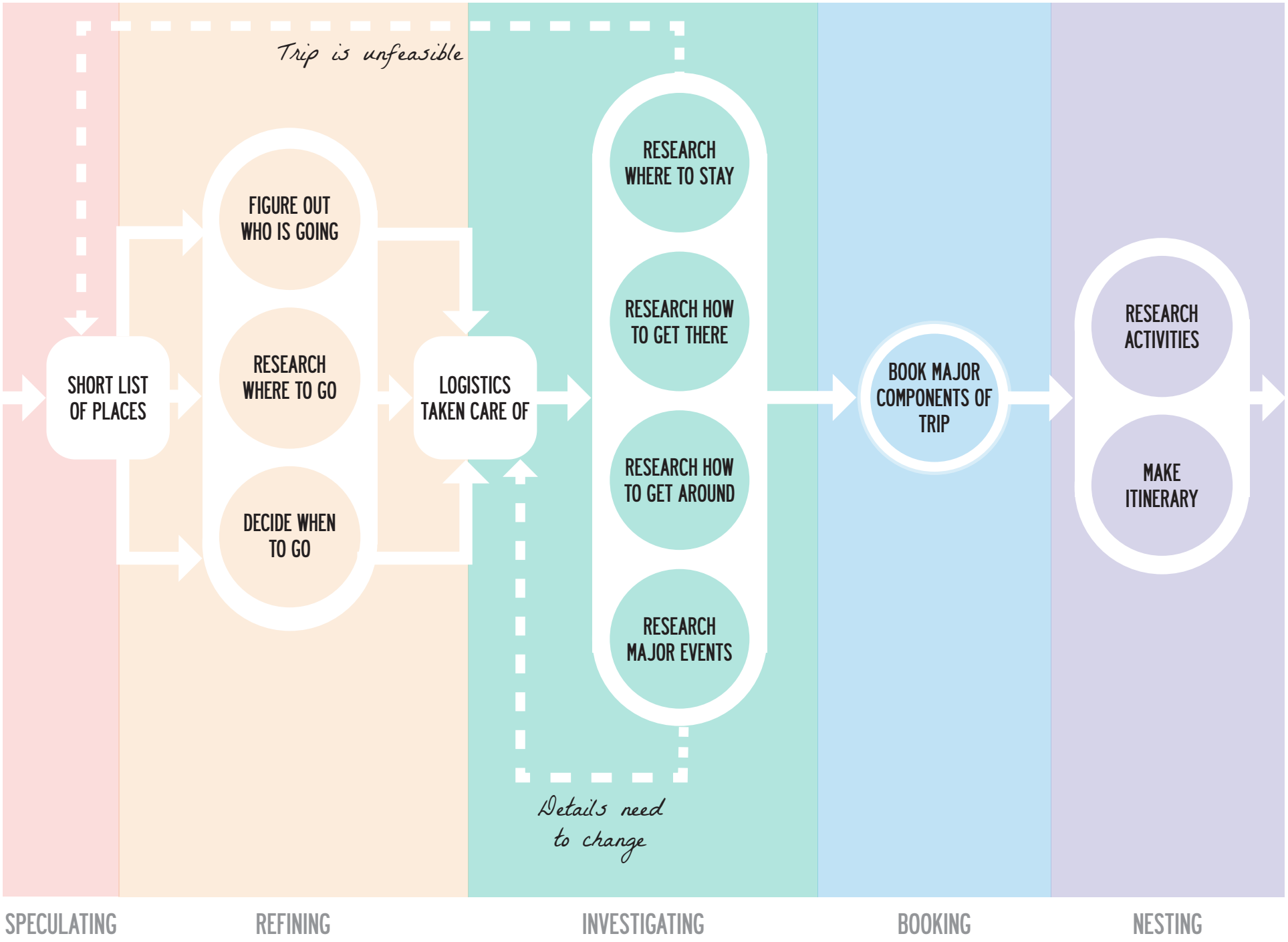
For each stage of travel planning, we identified the activities completed, needs, feelings/thoughts, barriers, touchpoints, and content that could help people at each stage. We created a chart outlining all of this information and then made a user journey diagram showing how people would move between these activities. From this information, we decided to try to focus on the majority of the issues we found, creating a holistic experience that would be used across the entire travel planning process.

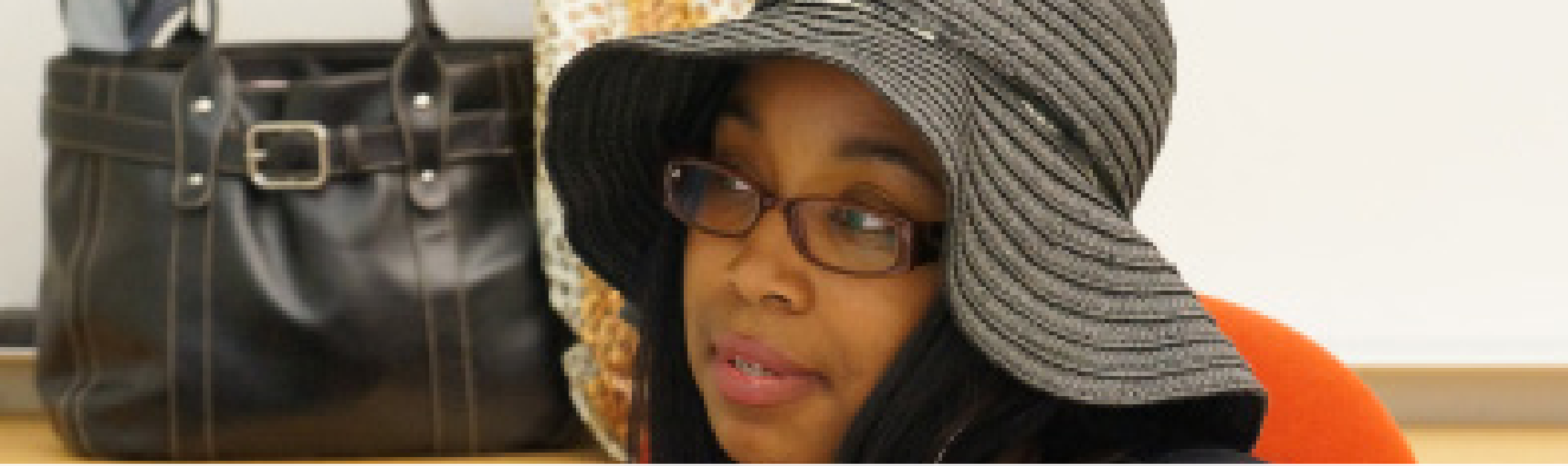
The detailed chart that accompanies the user journey diagram on the facing page can be seen on page 122 in the Appendix.

Achievability Matrix

Based on the problems and barriers we had identified, we brainstormed features that could help people with their travel planning. We came up with 53 features and positioned them on an achievability matrix based on ease of implementation and anticipated impact. From this, we selected twenty features that we felt made a cohesive service to assist travelers throughout their planning process. These twenty features would be included in our first prototype.

The achievability matrix and feature list can be seen on page 126 in the Appendix.


Trip is unfeasible
SHORT LIST OF PLACES
FIGURE OUT WHO IS GOING
RESEARCH WHERE TO GO
DECIDE WHEN TO GO
LOGISTICS TAKEN CARE OF
RESEARCH WHERE TO STAY
RESEARCH HOW TO GET THERE
RESEARCH HOW TO GET AROUND
RESEARCH MAJOR EVENTS
Details need to change
BOOK MAJOR COMPONENTS OF TRIP
RESEARCH ACTIVITIES
MAKE ITINERARY
SPECULATING
REFINING
INVESTIGATING
BOOKING
NESTING



FINAL PRODUCT

2

OVERVIEW

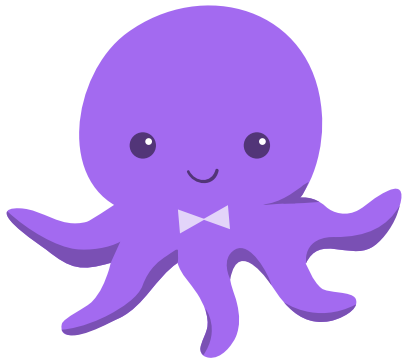
Summary

Oliver is a mobile application that helps people plan activities to do while traveling. People can discover activities in a picture-based Discovery screen, with recommendations that are personally tailored to them based on a learning algorithm.

The application also makes it easy to save favorite activities and create an itinerary. Traveling with others is also made simpler and more enjoyable with collaborative itineraries.

Oliver the Octopus

Oliver, the namesake of the application, is an ever-present octopus who provides advice and recommendations to people as they use the application. His eight tentacles allow him to juggle many tasks and activities at once, easing the planning process for the traveler.



Oliver: For all of your travel needs!

Main Features

The main section of Oliver is Discovery, where people can explore activities, one at a time, through a side-scrolling picture-based interface. When someone hides or favorites an item, Oliver learns about their preferences and is able to provide more personalized suggestions.

When activities are favorited, they are saved in a separate favorites list. They can also be added to an itinerary that is organized by date and time of day. This itinerary can be shared with fellow travelers to allow for collaborative adding and commenting.

Exploring, Planning, Sharing

Oliver was the result of a long process of iterative prototyping and user testing. The final solution addresses the three main insights that we found through our spring user research: exploring, planning, and sharing. The different sections of the application help users with barriers in each of these areas and make travel planning more delightful and less stressful.

The following pages will outline the main features of the application and how they address each of our research insights.

EXPLORING

Problem

In our research, we saw that people liked to explore new things, but could also easily become overwhelmed by too much information.

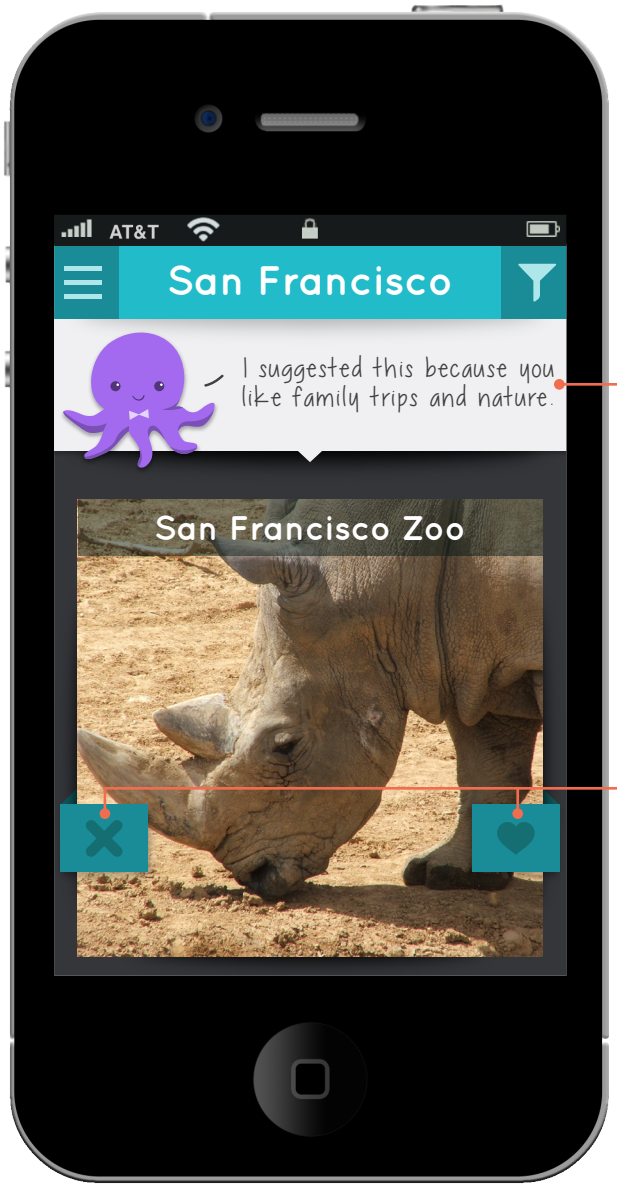
Insight

Exploration is more enjoyable when the content is relevant, but there is still a desire for something novel.

Solution

Oliver only presents one activity at a time and learns about people as they favorite and hide items so that suggestions are tailored to the individual's likes and dislikes. People can also filter activities and read more about them.

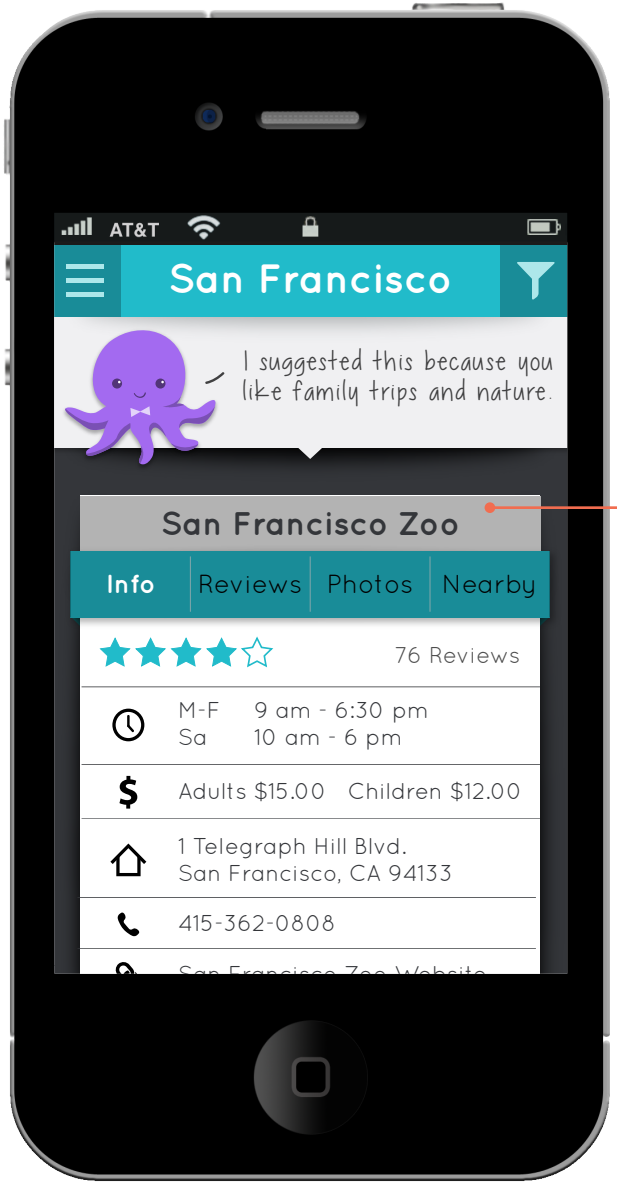
DISCOVERY



Oliver suggests activities based on favorited and hidden activities

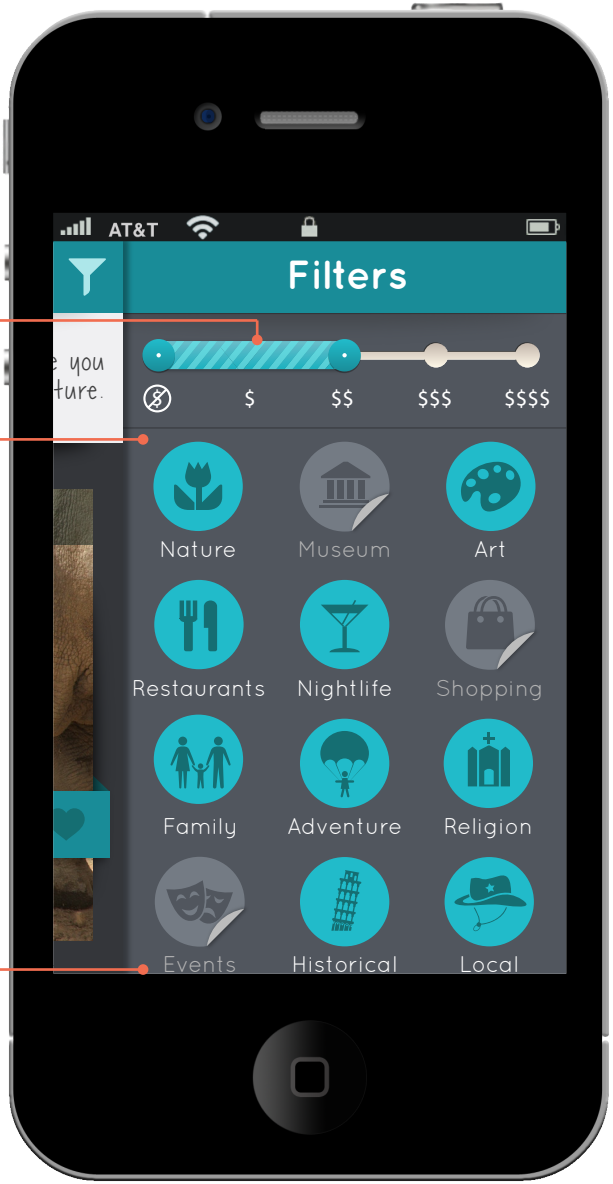
activities can be favorited or hidden

DISCOVERY - DETAILS



tapping the card reveals activity details on the back

FILTERS



activities can be filtered based on price

activities can be filtered by category

PLANNING

Problem

During our user research, we observed that most participants struggled to keep their travel planning organized and would forget what they had seen.

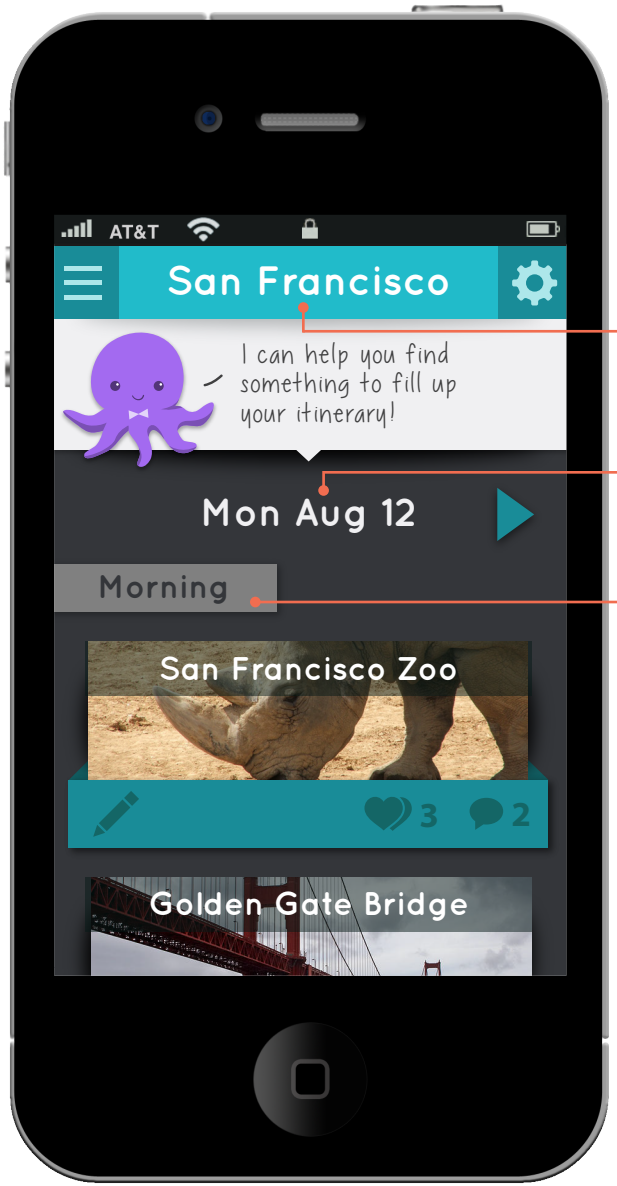
Insight

Confident researching and organizing make travel planning more delightful and less stressful.

Solution

Oliver collects the traveler's activities in an itinerary, organized by date and time of day. It also encourages early planning by allowing people to save activities in their Favorites before starting an itinerary.

ITINERARY

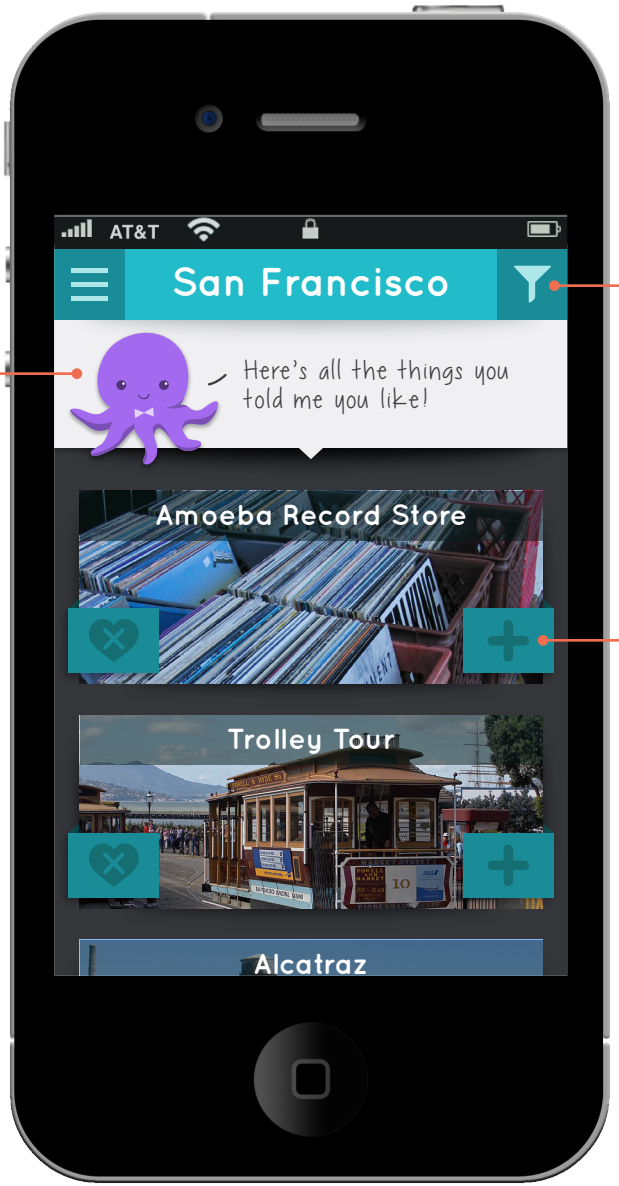


separate itineraries for each city

itineraries are divided by day

activities are organized by time of day

FAVORITES



Oliver keeps track of activities that have been favorited

filters make it easier to find favorites within a specific category

activities can easily be added to the itinerary

SHARING

Problem

Throughout our user research, many of our participants expressed how difficult it was to plan trips with family and friends. Others would often not get back to them and they spent most of their time waiting for responses and decisions.

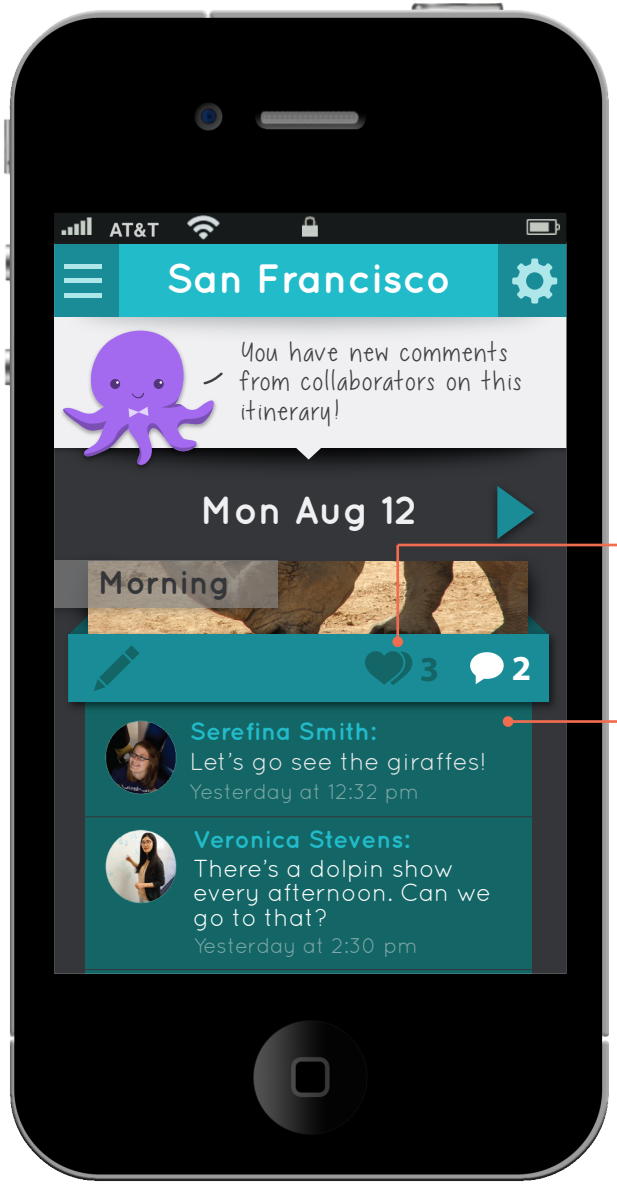
Insight

Experiences are better when they are shared with others, but coordination between people can be difficult.

Solution

Oliver facilitates collaboration by directly sharing itineraries with comments and indicators of who has favorited an activity.

COLLABORATION



indicator shows how many collaborators have favorited an activity

all collaborators are able to leave comments on activities

PROCESS

We reached our final product through an iterative cycle of design and user testing. We had a total of eight iterations falling into three main concepts: Plan-O-Magic-O-Rama, Foray, and Oliver. Each of the concepts represented a narrowing of our focus until we reached our final product design. Throughout the process, our decisions were guided by three design principles, which are outlined in this section,


<3 UR

DESIGN PRINCIPLES

Summary

These three design principles guided our decisions throughout our process of iterative design. They outline the key points we felt were necessary to successfully create a delightful planning process. As we progressed through the iterations and narrowed to our final concept, we increasingly referenced these principles to ensure we were creating an enjoyable and easy-to-use product for travelers.

Travel planning should be quick and effortless.

People should be able to choose how they plan travel.

Confident decision-making requires relevant information.


San Francisco
See Map
June 4
10am
12pm
2pm
5pm
6pm
9pm
June 5
Golden Gate Bridge
Time Machine
2012
Jun 4
Jun 18
Dec 25
Dec 27
2013
Today
July 1
July 5
Sep 12
Sep 14
SAN FRANCISCO
PARIS
Male

ITERATIONS OVERVIEW

CONCEPT 1: PLAN-O-MAGIC-O-RAMA

Iteration 1.1	Iteration 1.2
sketched paper prototype	printed paper prototype
web	web
travel items are book through a "package" history keeps track of items viewed and their prices	live-update flight search page increased number of screens for more interactivity

trying to do too much

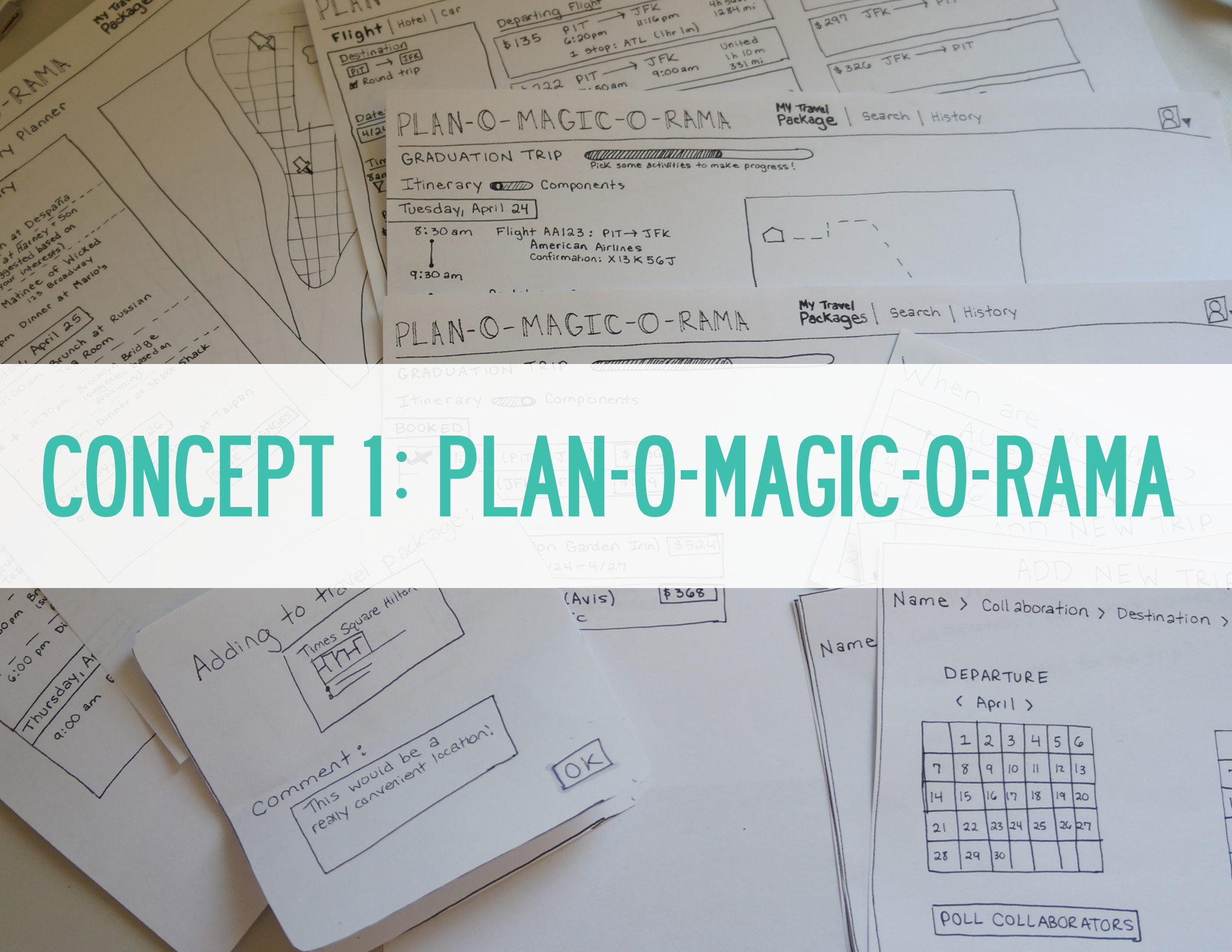
CONCEPT 2: FORAY

Iteration 2.1	Iteration 2.2
clickable sketched prototype	clickable wireframe prototype
mobile	mobile
focuses only on travel activities activities are organized on a timeline itinerary	travelers can collaborate on itineraries curated itineraries are constructed by experts

CONCEPT 3: OLIVER

Iteration 3.1	Iteration 3.2	Iteration 3.3	Iteration 3.4
clickable + paper prototype	clickable prototype	functional + clickable prototype	functional prototype
mobile	mobile	mobile	mobile
Oliver learns and makes tailored activity suggestions side-scrolling discovery screen simpler collaborative itineraries	navigation via "hamburger" menu clean and bright design language	"first-time user" experience	refined iconography

too utilitarian, lost delight



CONCEPT 1: PLAN-O-MAGIC-O-RAMA

3

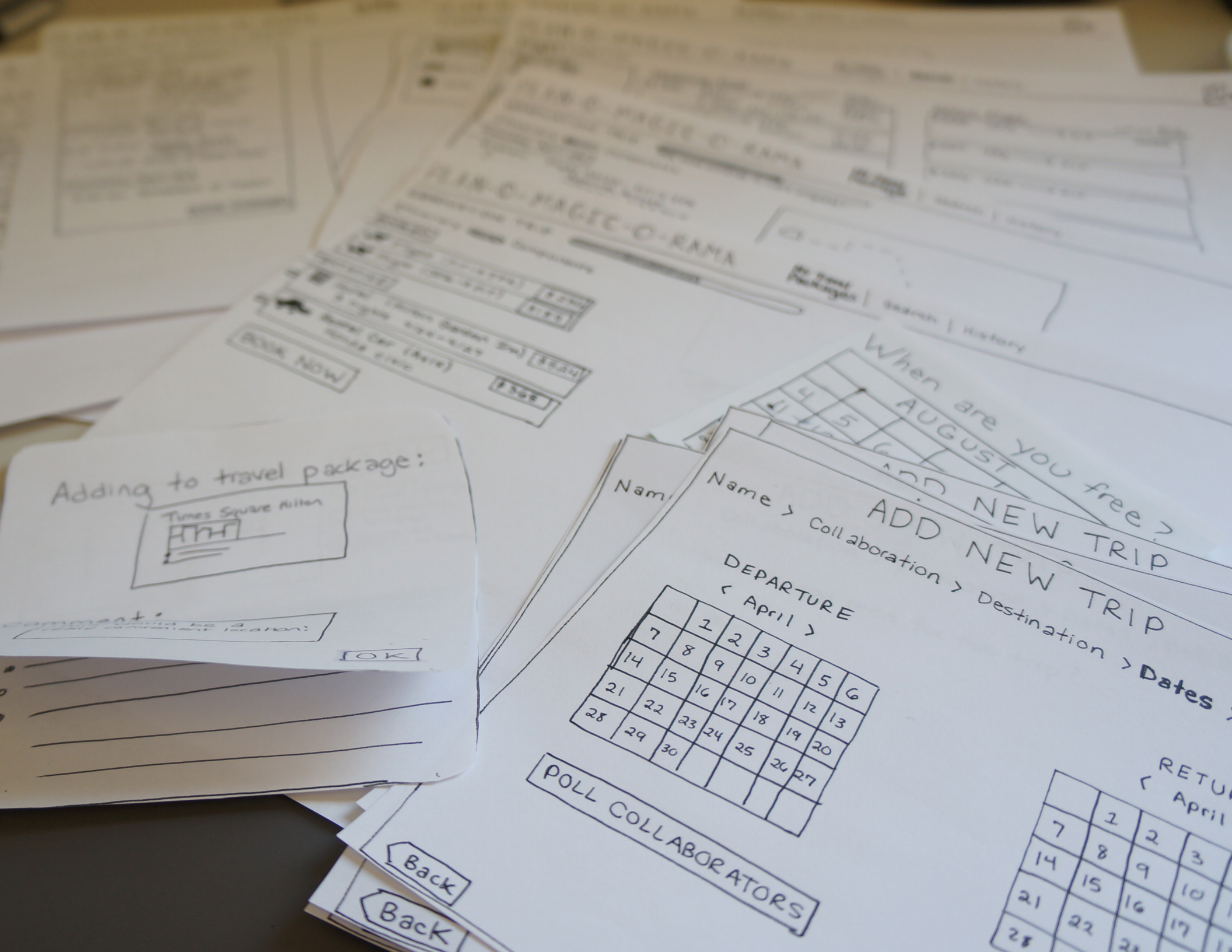
CONCEPT OVERVIEW

Issues with Travel Planning

Our user research revealed that currently, travel planning can be stressful and overwhelming due to a number of different factors. The large amounts of information people encounter can be hard for them to process, and keeping research organized can be difficult. The **majority of our participants would end up repeating research** because they could not remember what they had seen, and were uncertain about making purchases because of conflicting information online. Additionally, many of our participants were traveling with friends and family, and faced barriers due to the coordination between individuals. **They spent a great deal of time waiting for other people to respond and make decisions**. All of these issues compound to create a frustrating and unpleasant planning experience for the majority of travelers.

Focus

In order to help travelers overcome barriers within all five stages of travel planning, we developed a concept called Plan-O-Magic-O-Rama (POMOR). This was a website that would help travelers plan their trips from the **refining stage all the way to nesting**. Through facilitation of research, booking, and collaboration, POMOR would be able to greatly **increase the ease with which people could plan their travel**.


Adding to travel package:
Times Square Hilton
OK
When are you free?
AUGUST
ADD NEW TRIP
Name > Collaboration > Destination > Dates
DEPARTURE
< April >
POLL COLLABORATORS
Back
Back

SEARCH

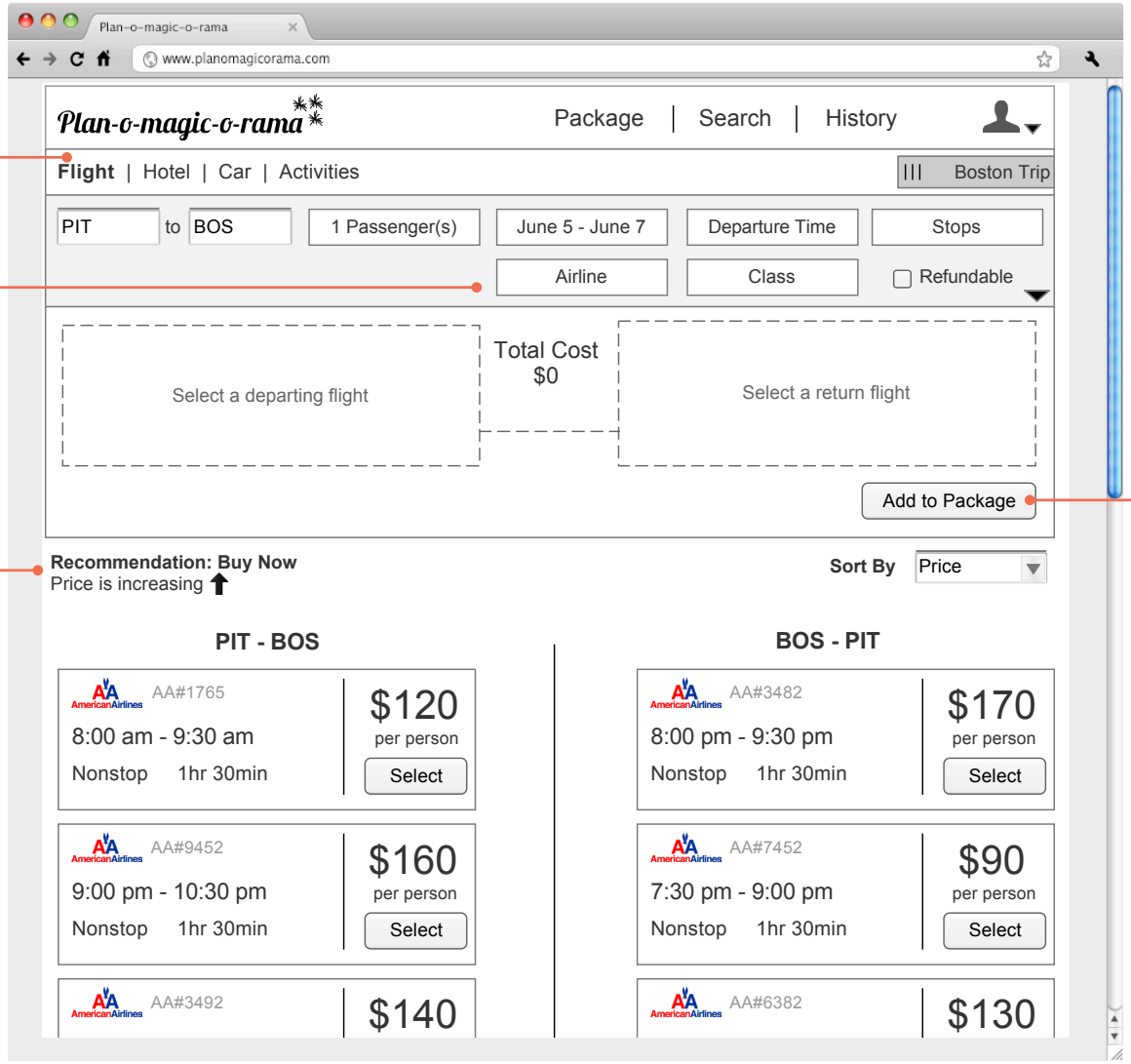
search function for flights, hotel, car, and activities

search is separated by type

filters provide control over search

price trend recommends whether to buy or wait

package allows everything to be booked at once

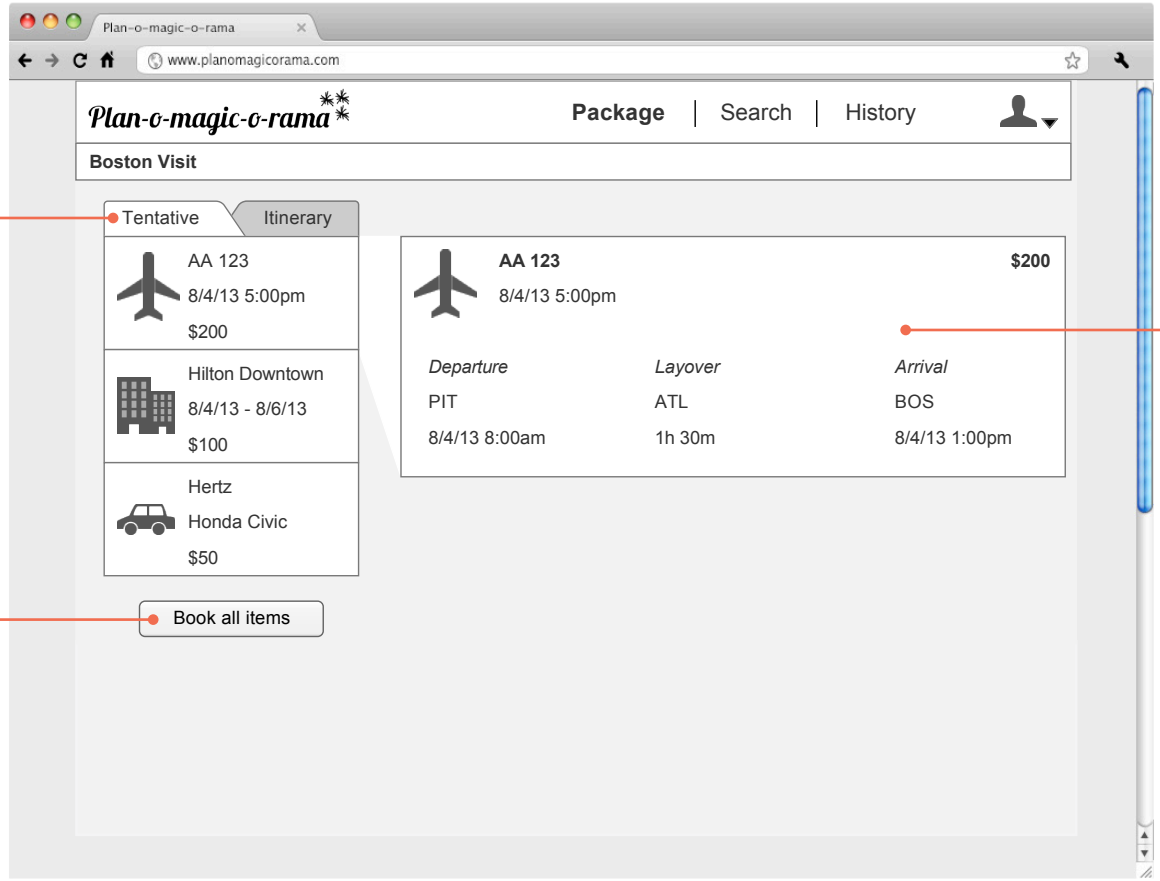


TRAVEL PACKAGE

all items for a trip saved in one place

items are separated by whether or not they have been booked

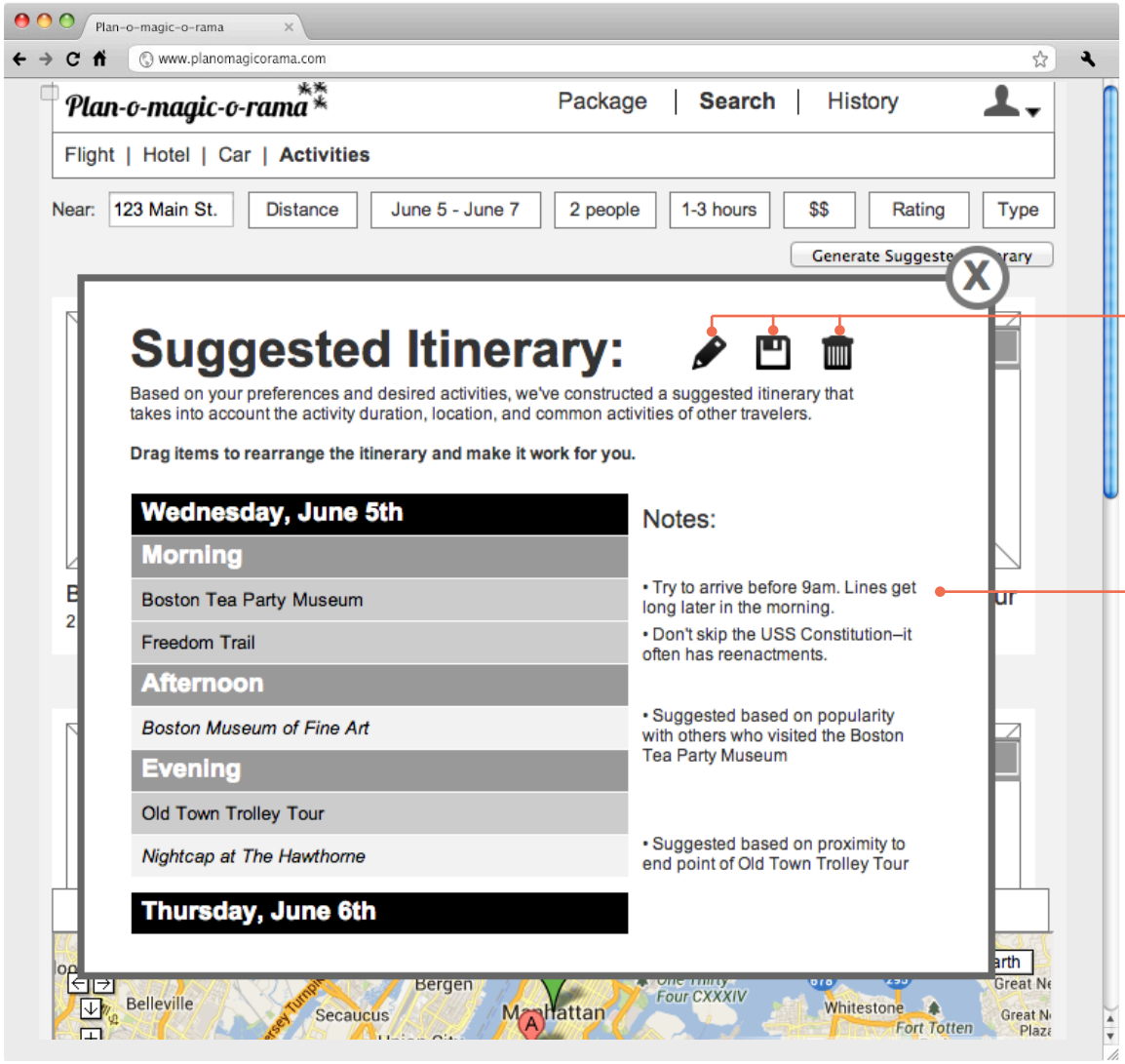
all items can be booked at once



when items are clicked, details can be viewed in this area

SUGGESTED ITINERARY

system-created itinerary based on activities that have been selected



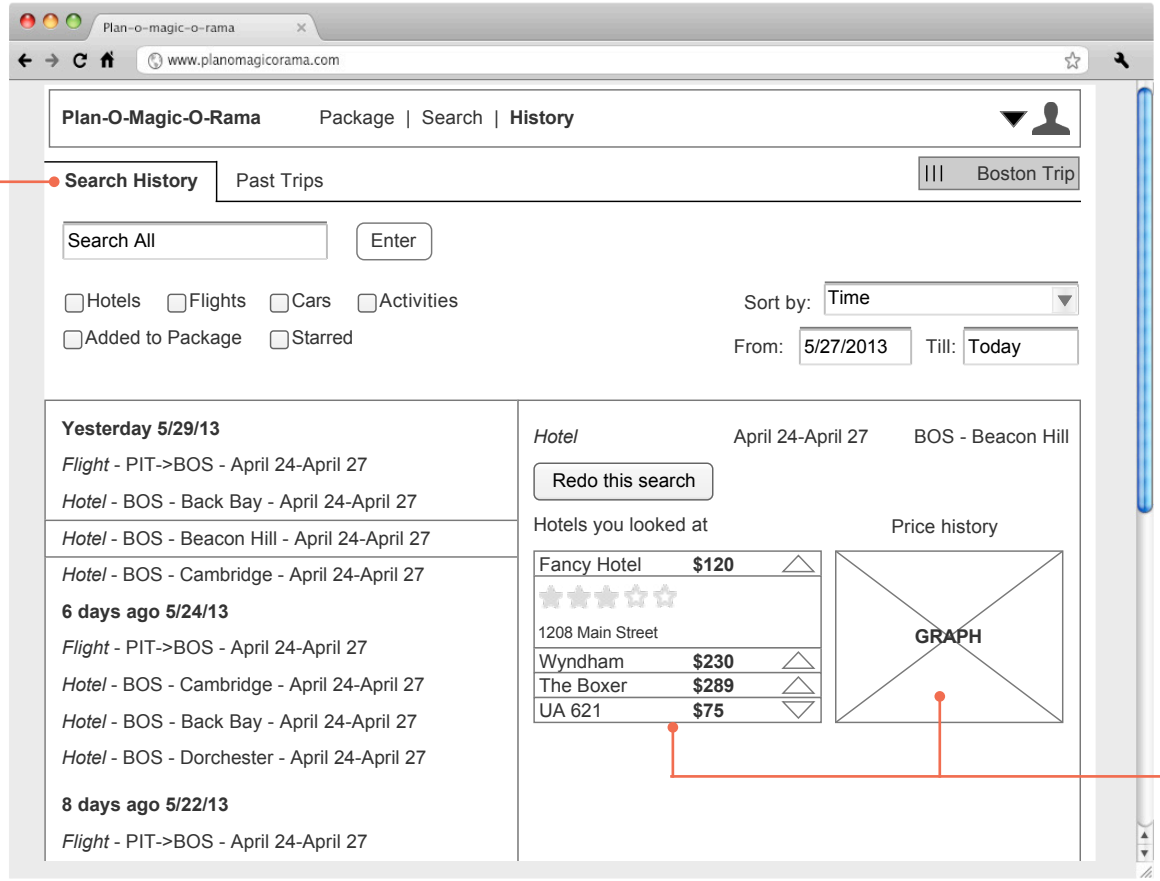
itinerary can be edited, saved, or deleted

helpful hints are included about some activities

HISTORY

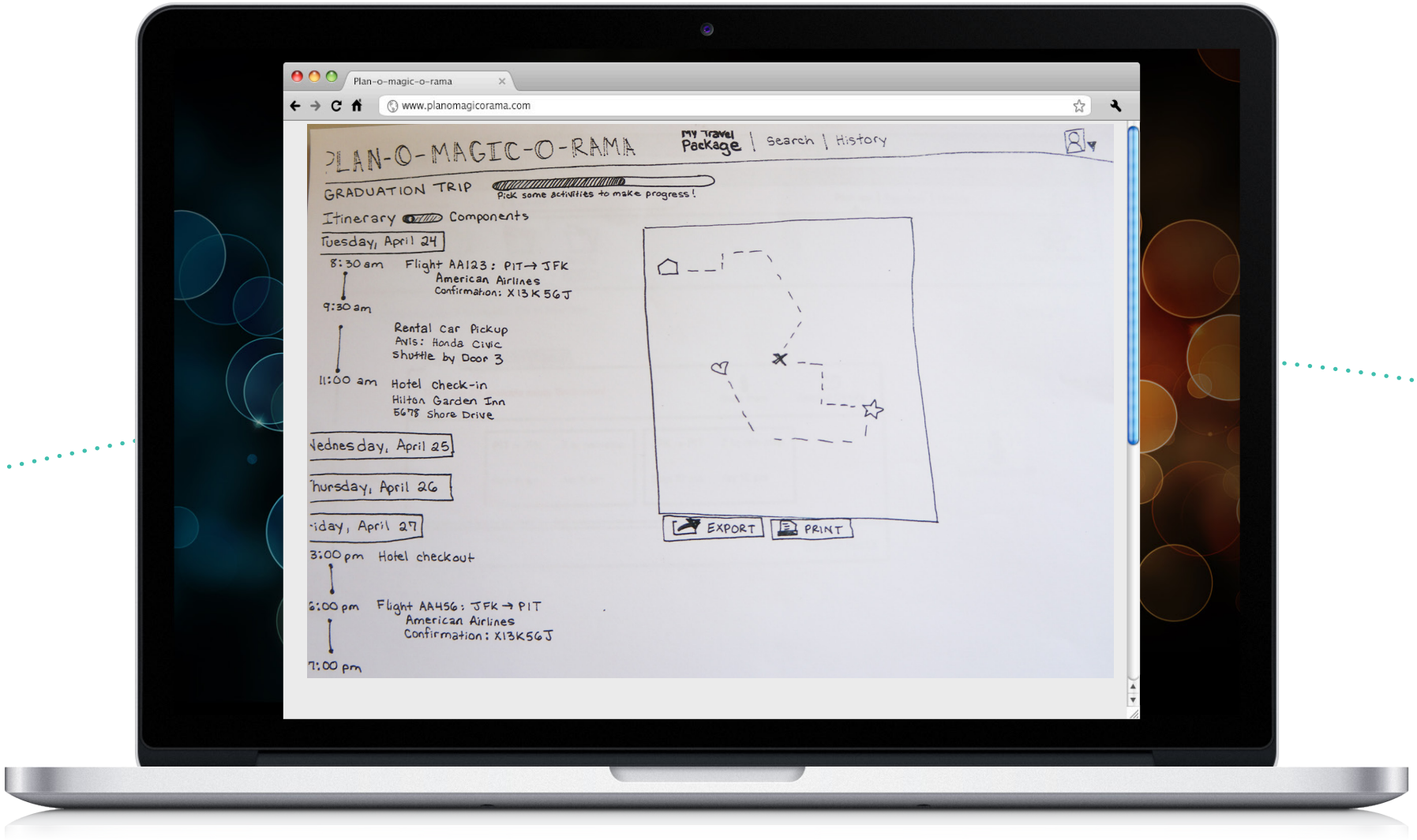
record of all recent searches with details of specific items and price trends

system keeps track of past searches



details show which items were viewed and their price trend graph

ITERATION 1.1


Plan-o-magic-o-rama
www.planomagicorama.com
PLAN-O-MAGIC-O-RAMA
My Travel Package | Search | History
GRADUATION TRIP
Pick some activities to make progress!
Itinerary Components
Tuesday, April 24
8:30 am Flight AA123: PIT→JFK
American Airlines
Confirmation: X13K56J
9:30 am
Rental Car Pickup
AVIS: Honda Civic
Shuttle by Door 3
11:00 am Hotel check-in
Hilton Garden Inn
5678 Shore Drive
Wednesday, April 25
Thursday, April 26
Friday, April 27
3:00 pm Hotel checkout
6:00 pm Flight AA456: JFK→PIT
American Airlines
Confirmation: X13K56J
7:00 pm
EXPORT
PRINT

ITERATION OVERVIEW

Main Features

The central concept of POMOR was a **"package"** created by someone planning a trip. People could select big-ticket items for their trip, add them to a "package," and **book them all at once**. This would help them to stay more organized and ease the complicated process of booking different aspects of a trip.

Items like flights and hotels could be found through a **search function** that featured prominent pictures and numerous filters. This helped people **limit information** to only what was relevant.

Additionally, travelers could share trips and collaborate with friends. This **eased the process of coordination,** which was a pain point for many of our participants.

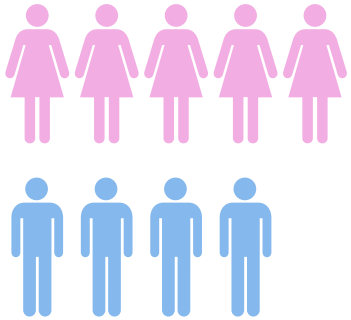
Testing

We created **sketches** and printed out screen mockups to use for **speed dating** with our colleagues. Sharing the screens and discussing Plan-O-Magic-O-Rama allowed us to get **high-level feedback** on our concept and direction.

Feedback

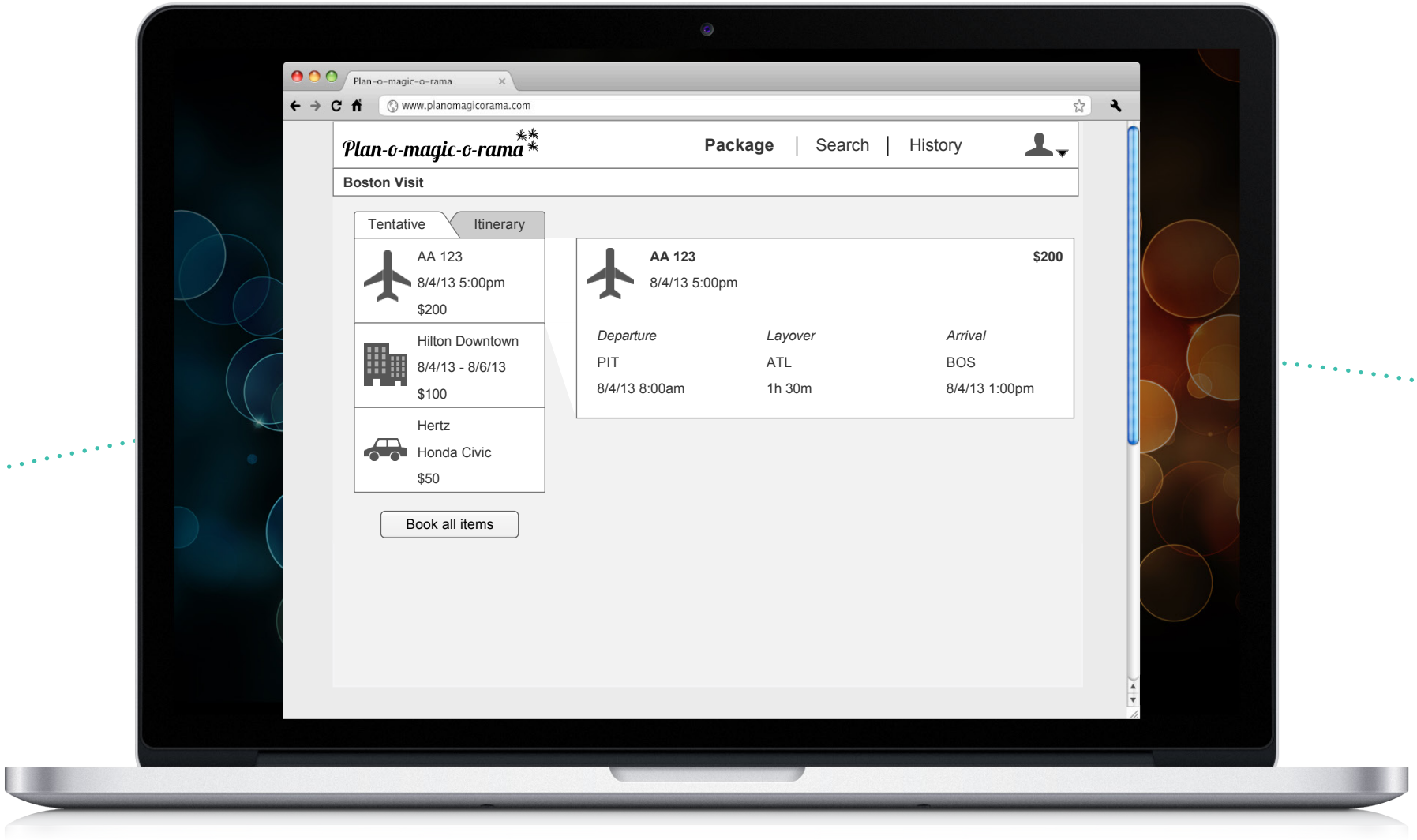
The main takeaway from our feedback was that we were **trying to solve too many problems** with POMOR. Some people were overwhelmed by how many things were happening and felt stressed when interacting with the prototype.

One person who had previously worked in the travel industry warned us that it can be very **difficult to solve everything at once**. We took this and the other feedback into consideration as we moved into our next iteration and further user testing.



9 COLLEAGUES
22-47 YEARS OLD

ITERATION 1.2


Plan-o-magic-o-rama
www.planomagicorama.com
Plan-o-magic-o-rama
Package | Search | History
Boston Visit
Tentative
Itinerary
AA 123
8/4/13 5:00pm
$200
Hilton Downtown
8/4/13 - 8/6/13
$100
Hertz
Honda Civic
$50
Book all items
AA 123
$200
8/4/13 5:00pm
Departure
Layover
Arrival
PIT
ATL
BOS
8/4/13 8:00am
1h 30m
8/4/13 1:00pm

ITERATION OVERVIEW

Changes

For the second iteration, we created more pages than we had for the previous prototype so that people could get a **more holistic feel** of the website. We wanted to investigate whether the negative feedback for the previous iteration was due to the complexity of the concept or the rudimentary nature of the prototype.

Although the overall concept remained the same, we did attempt to **simplify the flow** and **strengthen the importance of the "package"** on the website. We also updated the flight search page so that it showed arrival and departure at the same time and automatically updated prices.

Testing

We created screen mockups in Axure, a prototyping software, and then printed them out to create a **paper prototype**. We took the printed prototype to laundromats and coffee shops to conduct **guerrilla testing**. We asked people to **perform simple tasks** in order to validate two ideas: that the conceptual model underlying the interface was clear, and that the interface allowed people to accomplish common tasks they might perform on such a site.

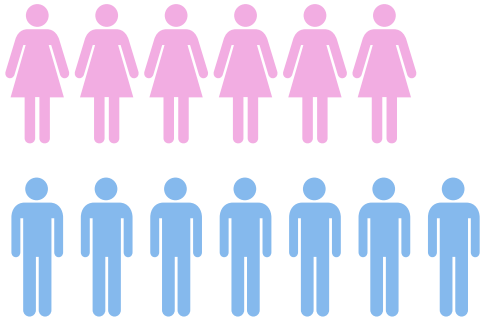
Most participants were asked to complete just one task, but several participants completed multiple tasks during testing.

Tasks

1. You have already set up a trip to Boston. Now add the cheapest departure and return flights and the cheapest hotel to your package.

2. You were doing research yesterday and saw a hotel you really liked in Boston. You've forgotten the name, but you can remember that it was on Main Street. Now add that hotel to your trip.

3. You are looking for some things to do during an upcoming weekend trip to Boston. Now find three activities and add them to your trip. Then get a suggested itinerary for your trip.



13 PARTICIPANTS
20-54 YEARS OLD

FEEDBACK

What delighted

- Five people said it was easy to choose flights because the departure and return flights were on the same page.
- Many participants thought the history feature would be really helpful to know what they had seen in the past.
- Several people were excited about the idea of having the system create an itinerary for them.

What worked

- Everyone was able to get to the search page, even if they did not figure out how to add items.
- Three people told us they would use the map view often.
- The majority of participants were able to easily navigate between the different sections of the site.

What failed

- The concept of a "package" was confusing and four people did not even realize they needed to add items to it.
- Two people wanted to be able to search and filter within their history.
- People were lost after they got their system-created itinerary.
- Two participants didn't notice there was a history tab.
- Several people wanted to be able save items to review later.

> “Can I save things for later? I don’t want to put them in my itinerary yet.”

CONCEPT 2: FORAY

4

CONCEPT OVERVIEW

Issues with Previous Concept

Based on the feedback from our testing with POMOR, we decided to narrow the focus of our product. Rather than easing the process of travel planning, POMOR was actually making it more stressful and **overwhelming people with the number of things it could do**.

We had attempted to solve all of the problems that we identified during our research and visioning, but we realized that it was better to solve one problem very well than tackle all of them. By attempting to solve many problems at once, we had **failed to fully solve any one problem**.

New Focus

We found that many people were excited by the idea of a tool to help them plan an itinerary of activities for their trips, so we began to focus on features that **facilitated discovery and organization of activities** to partake in while traveling. Since many people plan their trips on the go, we decided to redesign our web service to **work on mobile devices**.

HOME

list of all upcoming
trips on a timeline

map view is
always accessible

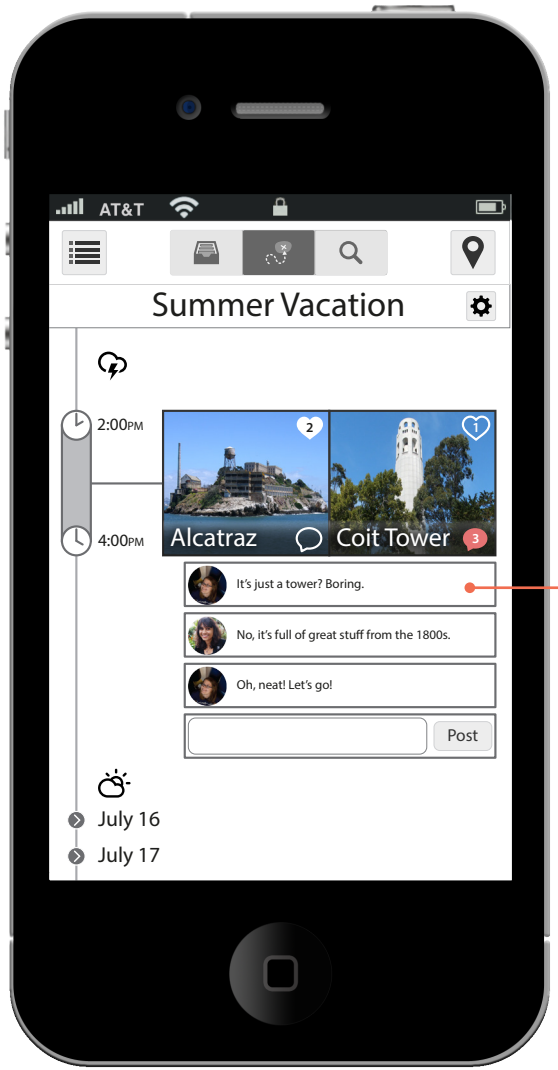
trips and activities
are presented on
a detailed timeline

ITINERARY

collection of all activities in a trip
listed out on a timeline

COLLABORATION

itinerary shared by multiple
people traveling together



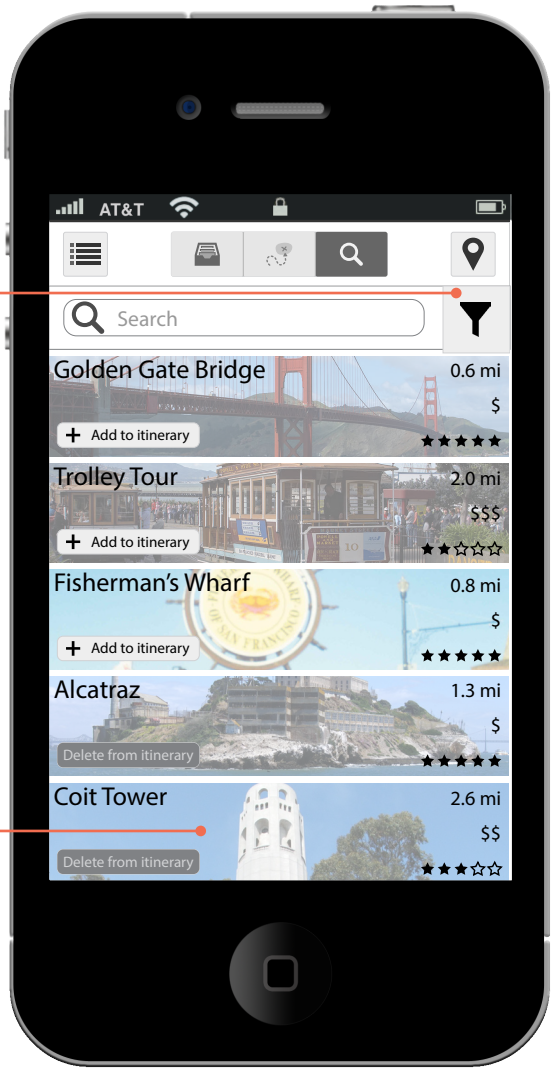
collaborators can
add, comment on,
and like activities

SEARCH

search function for activities
in a particular city

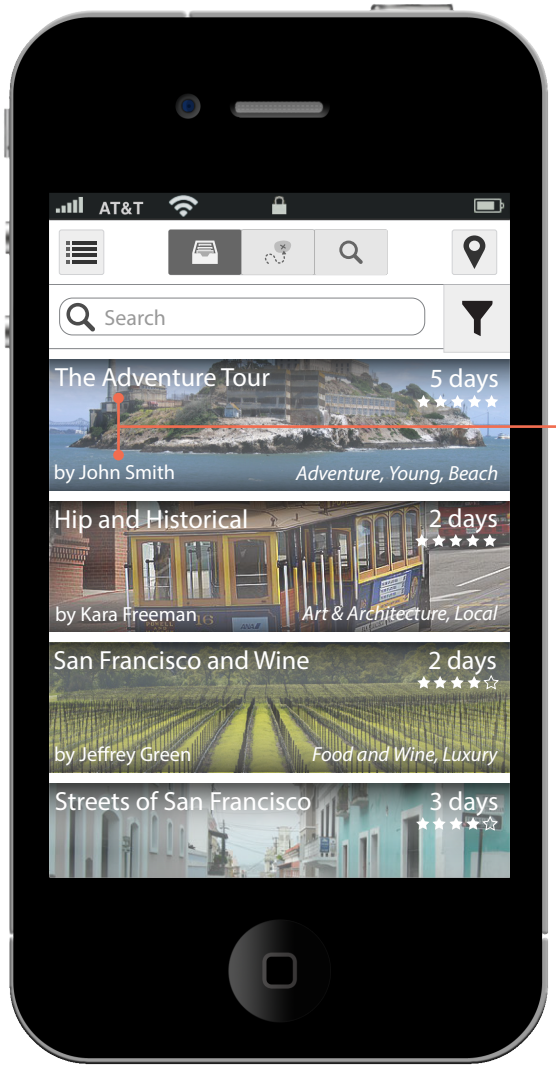
filters allow results to
be limited by price,
distance, or category

activities can be tapped
for more information



CURATED ITINERARIES

list of themed itineraries that are created by experts



itineraries can be tapped to see more details

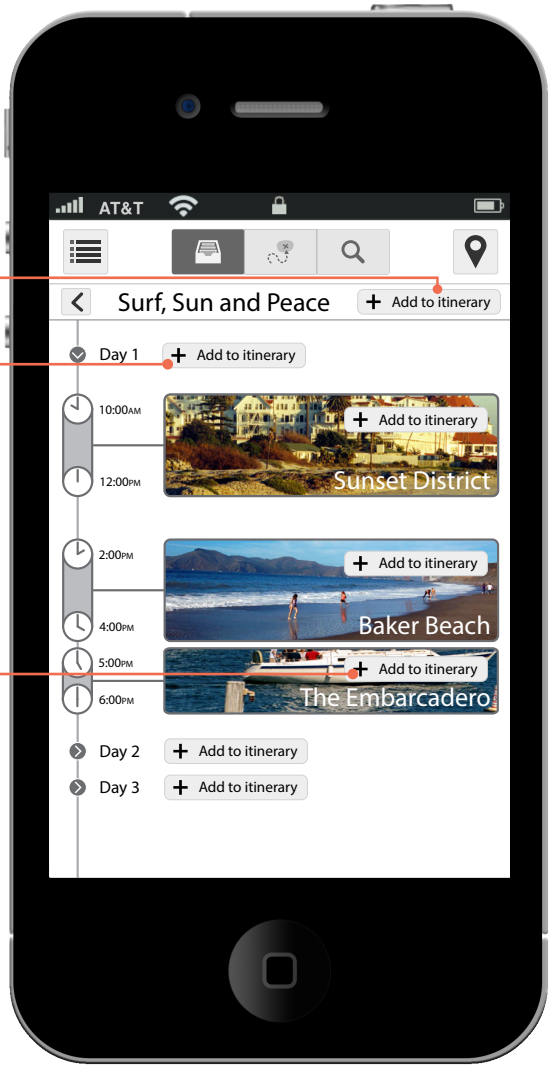
CURATED ITINERARY

multi-day itinerary that has been constructed by an expert

entire curated itinerary can be added at once

activities can be added by the day

individual activities can be added




of ideas

ITERATION 2.1


AT&T
Alcatraz
Info
Reviews
M-F 10am-5pm
Alcatraz Island
San Francisco, CA 94123
415-534-2985
About
AT&T
Curated Itineraries
My Itineraries
Search
SAN FRANCISCO
Jun 4
10:00am
2 hours
12:00pm
Ferry Building
2:00pm
2 hours
4:00pm
Alcatraz Prison
5:00pm
1 hour
6:00pm
Golden Gate Bridge
Curated Itineraries
My Itineraries
Search
Gate Bridge
0.6mi
$
1.2mi
$$
Tour
1.4mi
$$
Wharf
2.0mi
$
Tower
2.5mi
$
2.7mi

ITERATION OVERVIEW

Changes

As we moved into our Foray concept from Plan-O-Magic-O-Rama, we did away with the "package" concept for trips, and instead organized activities in a timeline-style itinerary.

Search was now focused only on activities to do while traveling and we redesigned the search results to make it easier to get quick information about activities. We also added a feature that would suggest a time when adding an activity to the itinerary.

Finally, we introduced **curated itineraries**, which would be pre-populated by experts. These were intended to serve as a discovery mechanism.

Testing

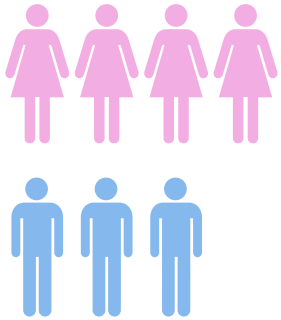
We initially created **hand-drawn sketches** of Foray. We then took photos of these sketches and created a **clickable prototype** that people could interact with on an iPhone. We went to coffee shops and other local businesses to solicit feedback by conducting **short usability tasks**.

Tasks

1. Find the phone number for Alcatraz.

2. Add the Golden Gate Bridge and Alcatraz to your San Francisco itinerary.

3. Figure out what you are doing on June 4th at 2 o'clock pm.



7 PARTICIPANTS
21-58 YEARS OLD

FEEDBACK

What delighted

- Three people thought that the sketchy aesthetic was fun and artsy.
- One person said he would use this on an upcoming trip.

What worked

- Everyone understood how to navigate the timeline.
- Three out of five people had no trouble finding the details about an activity.

What failed

- Two people wanted to be able to search for a date, time, or activity on their itinerary.
- Navigation between sections was not obvious to several people.
- One person wanted more information on the details page.
- One person wanted to be able to drag the clock buttons on the timeline.

> It looks like I’m not doing anything at 2pm. Can I drag this one [activity] to 2pm?

ITERATION 2.2


AT&T
Alcatraz
Info
Reviews
Fisherman's Wharf
Add to itinerary
Coit Tower
Delete from itinerary
Golden Gate Bridge
AT&T
FORAY
Add New Trip
2012
May 2
May 5
Las Vegas
2013
Jul 15
Jul 20
San Francisco
2
Sep 23
Sep 28
New York
Summer Vacation
Alcatraz
Coit Tower
It's just a tower? Boring.
No, it's full of great stuff from the 1800s.
Oh, neat! Let's go!
Post
16
17

ITERATION OVERVIEW

Changes

For the next iteration of Foray, we moved up in fidelity, creating our mockups in Illustrator and then importing the images into Flinto (an online prototyping service) to create a clickable prototype for our phones.

One of the biggest changes was to more strongly **emphasize collaboration**. From our research findings, we felt that this was an important aspect to include in our product. Travelers could share itineraries with others, with each person being able to add activities, "like" activities, and comment.

Based on interface feedback from user testing with the first iteration of Foray, we also made minor adjustments to the visuals in order to increase the readability and make the timeline **cleaner and more understandable**.

Testing

We imported our Illustrator files into Flinto in order to make a **clickable prototype** that could be used on an iPhone. We once again ventured to coffee shops to **guerrilla test** with people.

We created **four small tasks** that would help us get a feel for how people interact with the collaborative aspects of the application, as well as the creation of a new itinerary. We had each participant complete between two and four tasks.

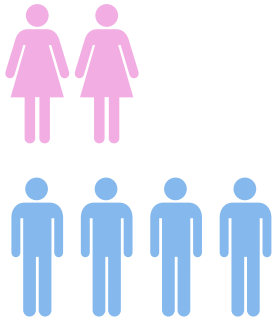
Tasks

1. Find an activity on your itinerary that has new comments and read them.

2. Create a new trip to New York City. The dates for the trip are August 22-25.

3. Find an activity within one mile of Alcatraz and add it to your San Francisco itinerary.

4. Delete the activity on your San Francisco itinerary which is least popular with your group.



6 PARTICIPANTS
23-42 YEARS OLD

FEEDBACK

What delighted

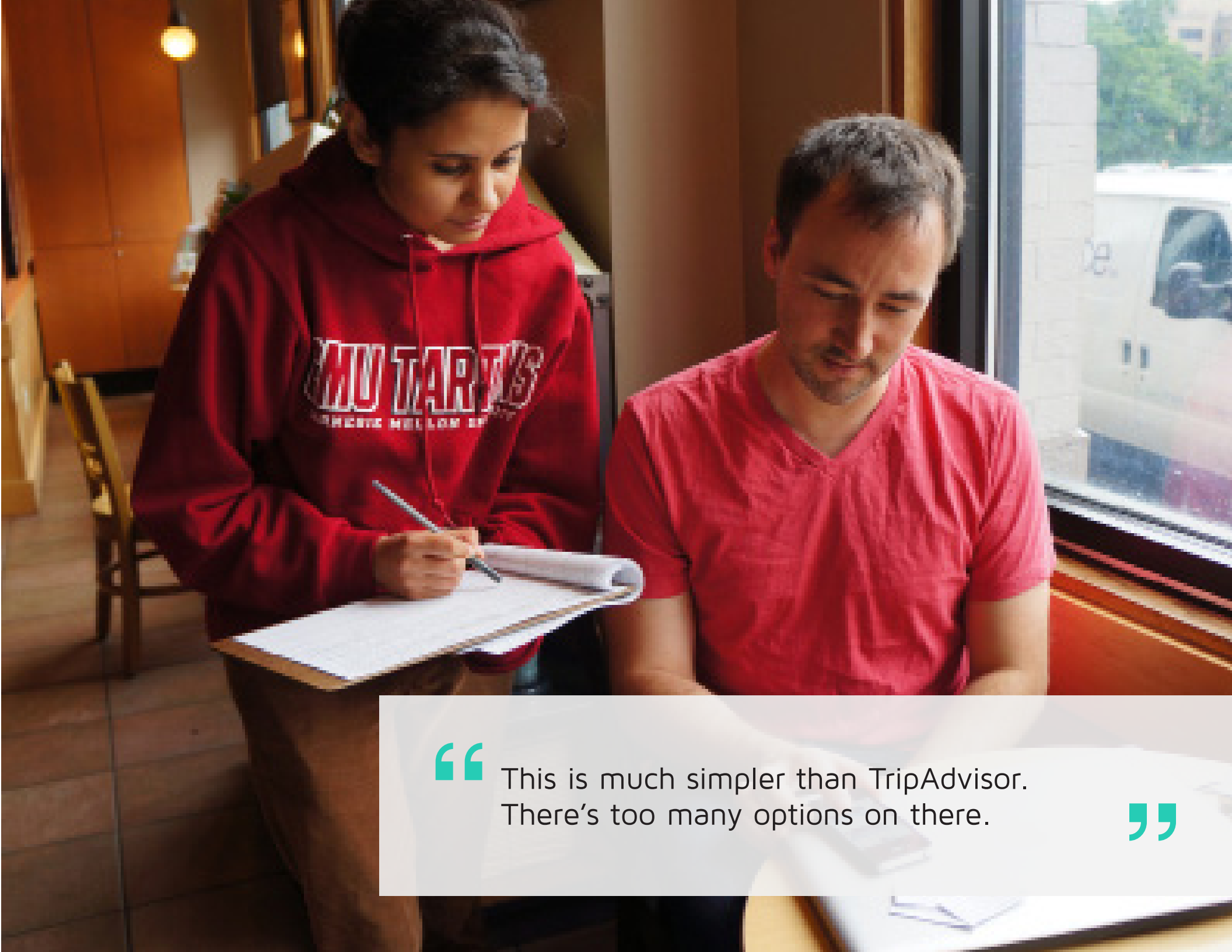
- Everyone thought the itinerary was very straightforward.
- Several people liked that the itinerary gave them perspective on all their trips at once.
- Four participants said they appreciated and trusted the time recommendations because they were explained.
- People thought the collaboration felt personal and trustworthy because the comments were just from their own friends.

What worked

- All but two participants knew immediately that the red speech bubble meant there were unread comments.
- People liked that there was a suggested time when they added activities, but three people said they wanted to be able to change it.
- All participants understood how to add basic information about a new trip.

What failed

- Almost everyone thought the clickable areas were too small.
- Two people said they wanted Facebook and travel site integration to fill out the trip set-up form for them.
- Two people were initially confused about what the hearts meant for collaboration.
- Several people's mental models of the different trips did not match the way the system worked.



> This is much simpler than TripAdvisor. There's too many options on there.

FINAL CONCEPT: OLIVER

5

CONCEPT OVERVIEW

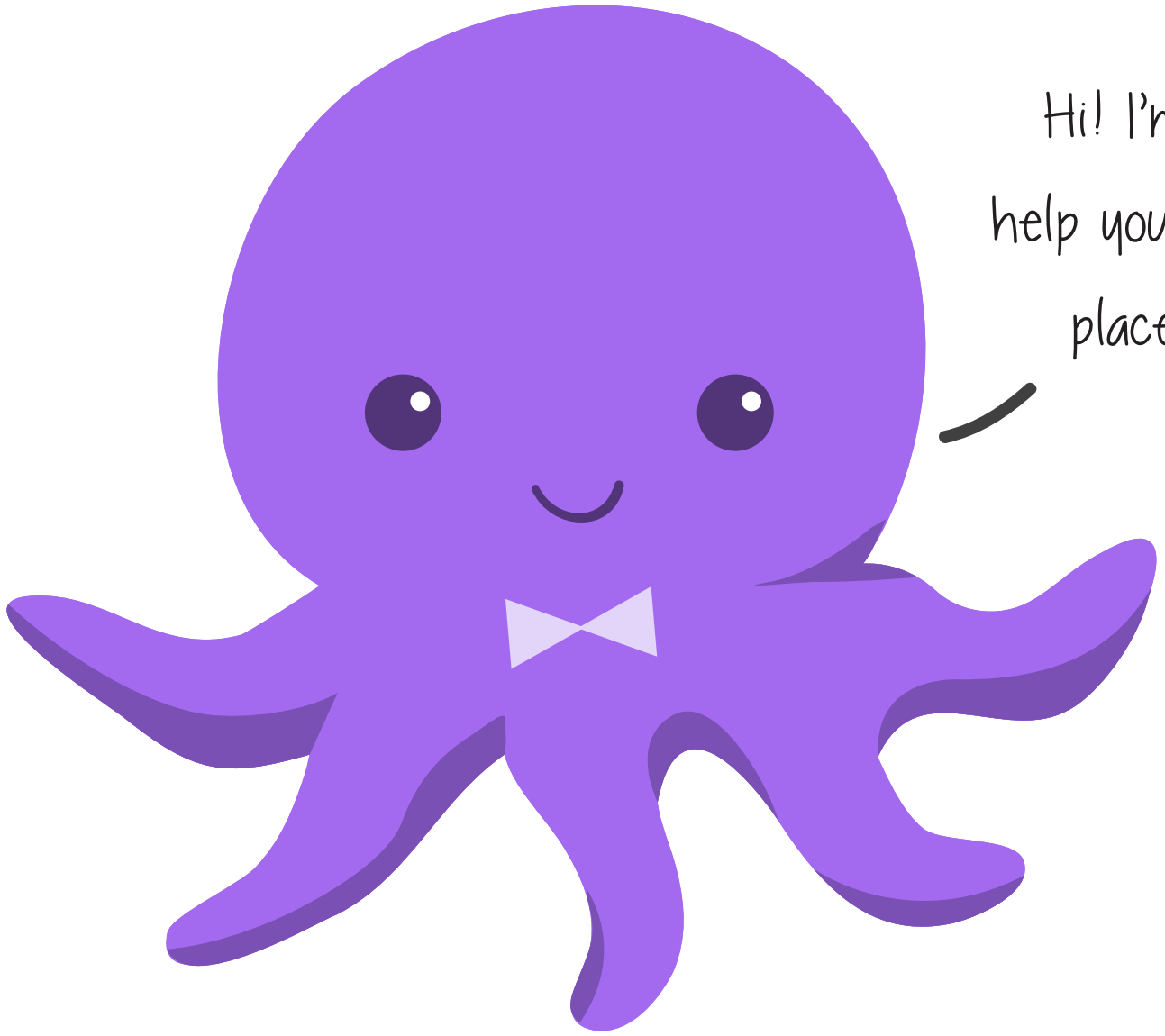
Issues with Foray

Through discussions with our clients and faculty, we realized that Foray had become **too utilitarian** and had more emphasis on planning than exploration and collaboration. We were concerned that we had **lost sight of the delight** that had initially been so integral to our user experience vision.

Focus

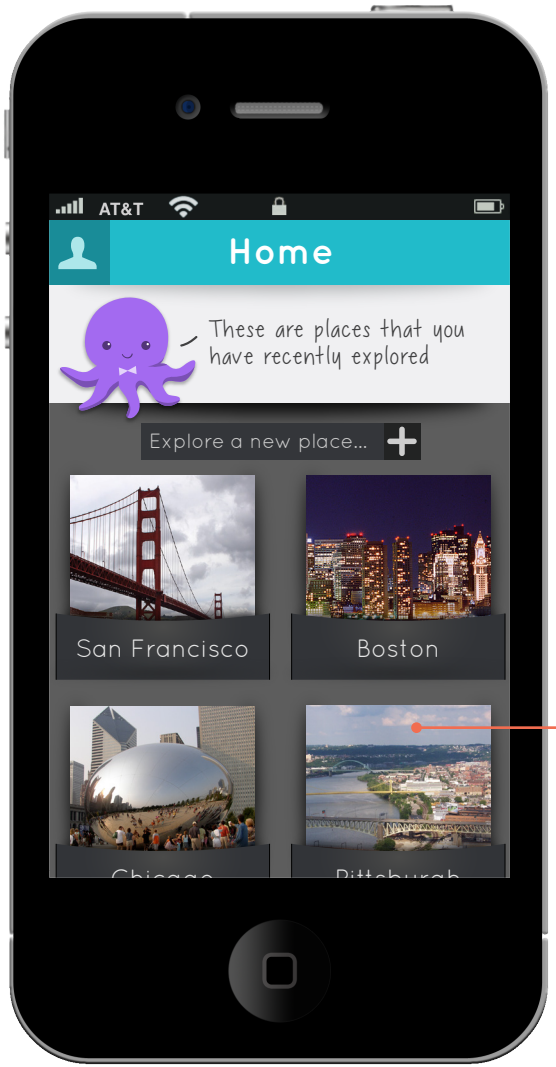
After brainstorming, we decided that it was especially important that we **focus more on the discovery aspect** of the product. The focal point of the product became a **picture-based discovery engine.** The system is able to learn about the user based on their favoriting and hiding of activities, and then provide **tailored suggestions** to them. In order to make the suggestions on the application more personal and bring more fun and delight into the interface, we decided to **personify the system with an octopus named Oliver**. He is ever-present, providing suggestions and assisting people with their travel planning.

With his eight tentacles, Oliver is easily able to help everyone juggle all the activities they want to do while they travel!


Hi! I'm Oliver. I'll help you discover new places to visit!

HOME

list of all cities that have previously been explored

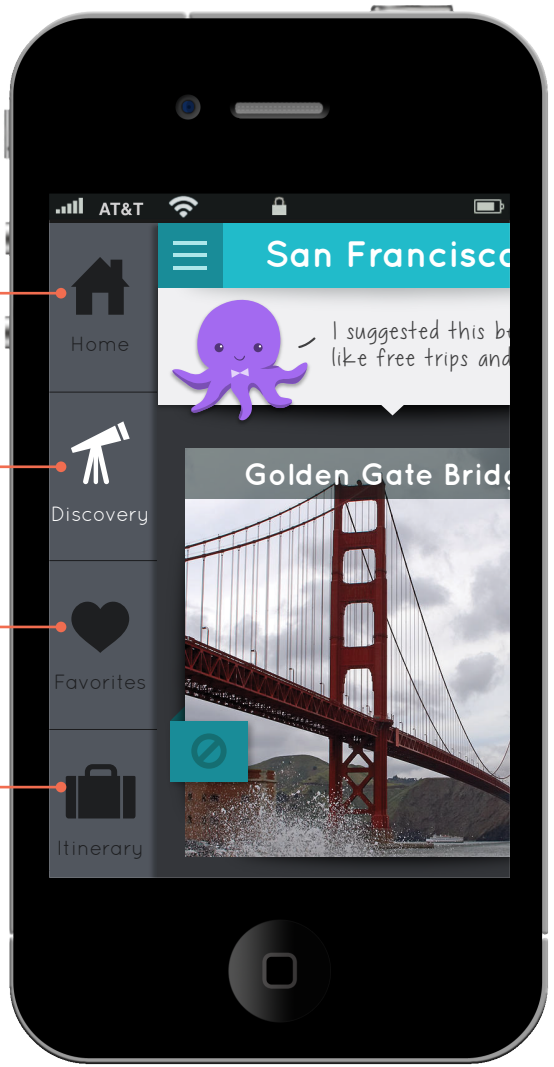


activities can be explored by tapping on a city

different pages can be reached via the "hamburger" menu

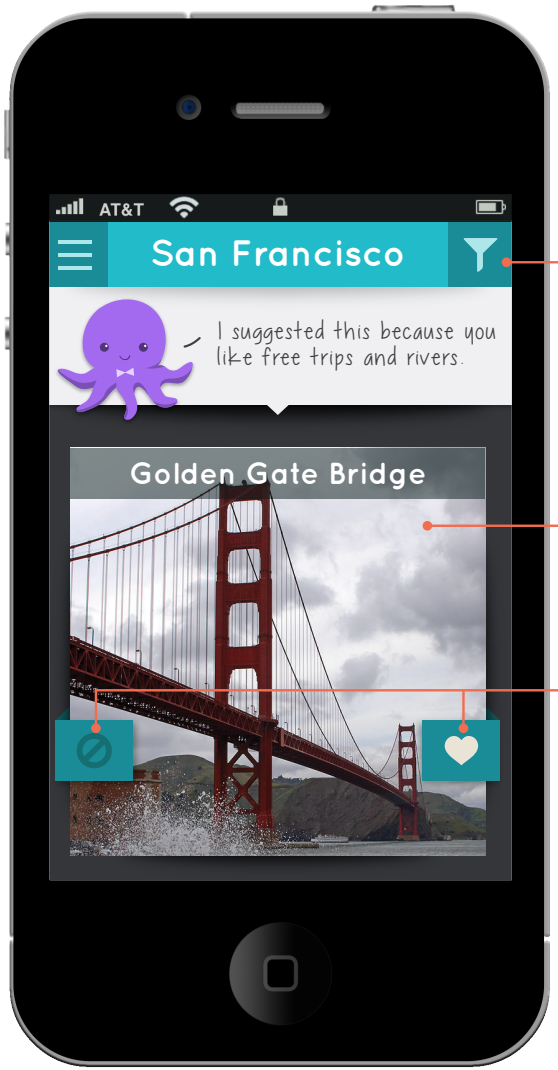
HAMBURGER MENU

between-section navigation that slides out from left side



DISCOVERY - FRONT

swipable list of activities
that Oliver has suggested



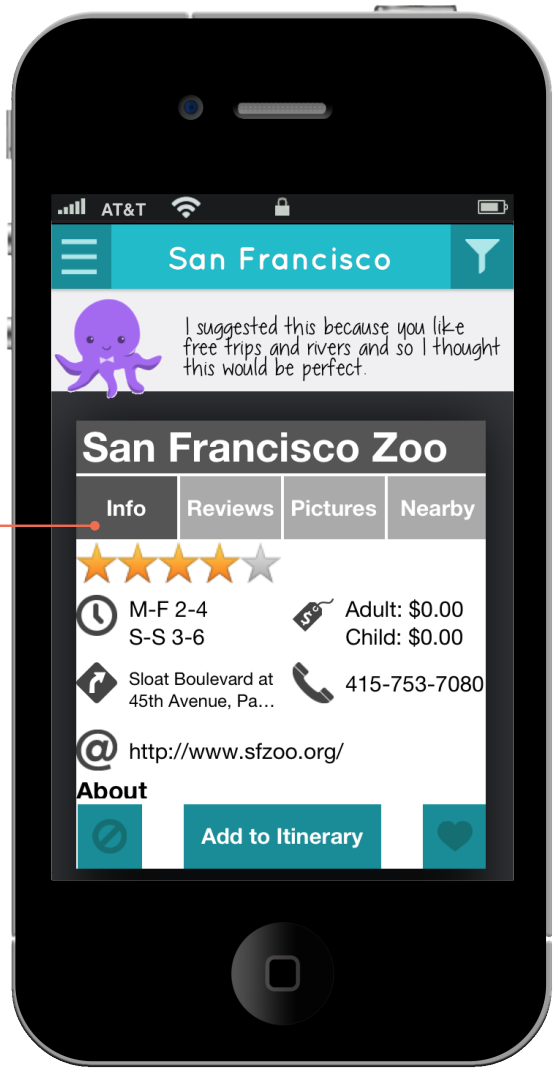
activities can be filtered
by price and category

tapping on a card
reveals more information
about that activity

Oliver can tailor
suggestions based on
what a person has
ignored or favorited

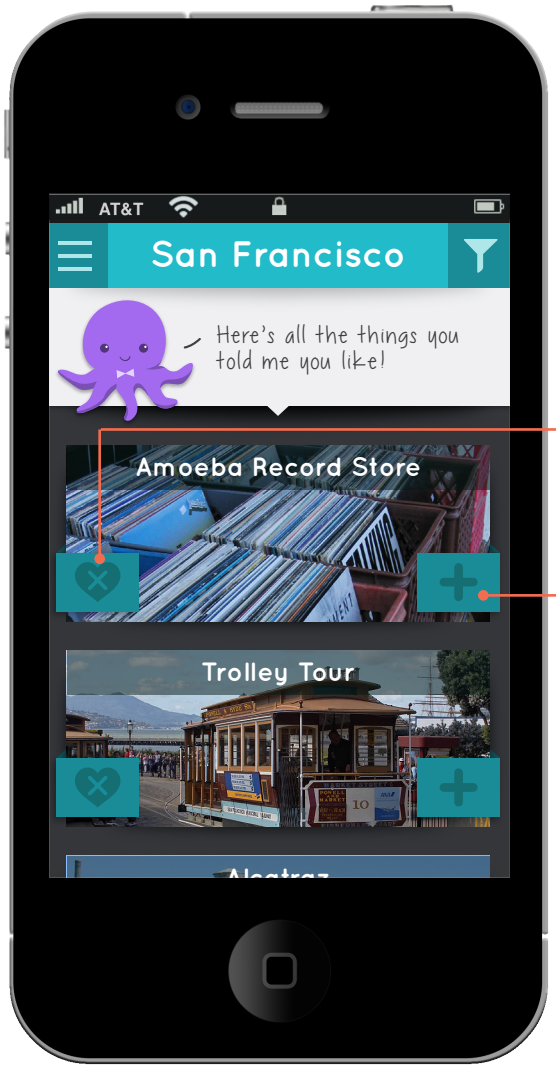
DISCOVERY - BACK

informational back of activity card



FAVORITES

list of activities that have been favorited in discovery

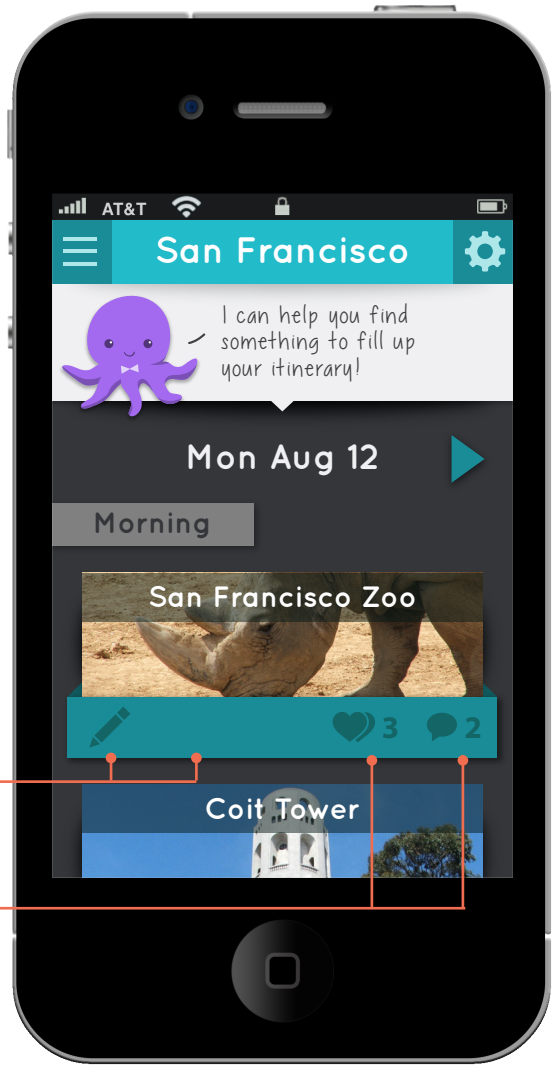


activities can be removed from favorites

activities can be added to the itinerary

ITINERARY

list of planned activities organized by date and time of day



activities can be deleted or moved within itinerary

collaborators can leave comments and favorites

ITERATION 3.1


AT&T
San Francisco
You have more activies plann
you can complete in a day. Yo
want to move one to another
Summer Bay Trip
Day 1 - June 23
Morning
Golden Gate Bridge
4
Ferry Building
3
AT&T
San Francisco
I'm suggesting this because you seem to like scenic views and exploring historic sites.
Coit Tower
San Francisco
n Gate Bridge
Trolley Tour
Alcatraz
Ferry Building

ITERATION OVERVIEW

Changes

This iteration was a complete overhaul of the previous Foray iterations and had three main sections: Discovery, Favorites, and Itinerary.

Discovery mode allows travelers to view activities one at a time. When people favorite or hide items, Oliver can **learn about their preferences and tailor his suggestions.** When travelers favorite items, they are saved in a separate list for that city.

From **Favorites**, people can add activities to their **Itinerary**, which is where collaboration occurs. They can **share their itinerary with friends**, after which everyone can add activities and comment. People can also see how many collaborators have favorited items in the itinerary.

Throughout the application, Oliver is present and provides suggestions and help for the traveler.

Testing

We created mockups in Illustrator and once again exported to Flinto to create a **clickable prototype** and conduct **guerrilla testing** in coffee shops. We also had a **paper prototype for the Discovery** section of the application because we were unable to prototype the swiping gesture at the current level of fidelity.

We designed **several tasks** to give us a feel for how people interacted with Discovery, the Itinerary, and Oliver. We also asked users to give us **general feedback** on the application and do an **interface walkthrough** to determine whether our iconography was clear.

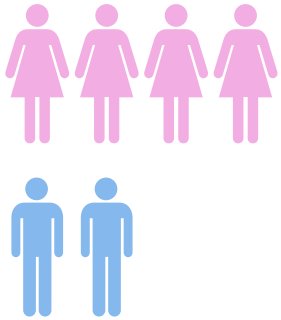
We had each participant complete two to three tasks and an interface walkthrough. Half did the walkthrough before completing any other tasks and half after.

Tasks

1. Explore activities and find something you would like to do in San Francisco.

2. You have previously saved several items to your favorites. Ask Oliver to make a new itinerary for San Francisco based on your favorites.

3. You have already made a two-day itinerary for a trip to San Francisco. Move your Ferry Building activity from the morning of the first day (June 23) to the afternoon of the second day (June 24).



6 PARTICIPANTS
20-47 YEARS OLD

FEEDBACK

What delighted

- Most people were delighted by Oliver's suggestions and his explanations because they could understand that he was learning about them.
- Several people mentioned that they appreciated Oliver telling them there were too many things to do in one day.

What worked

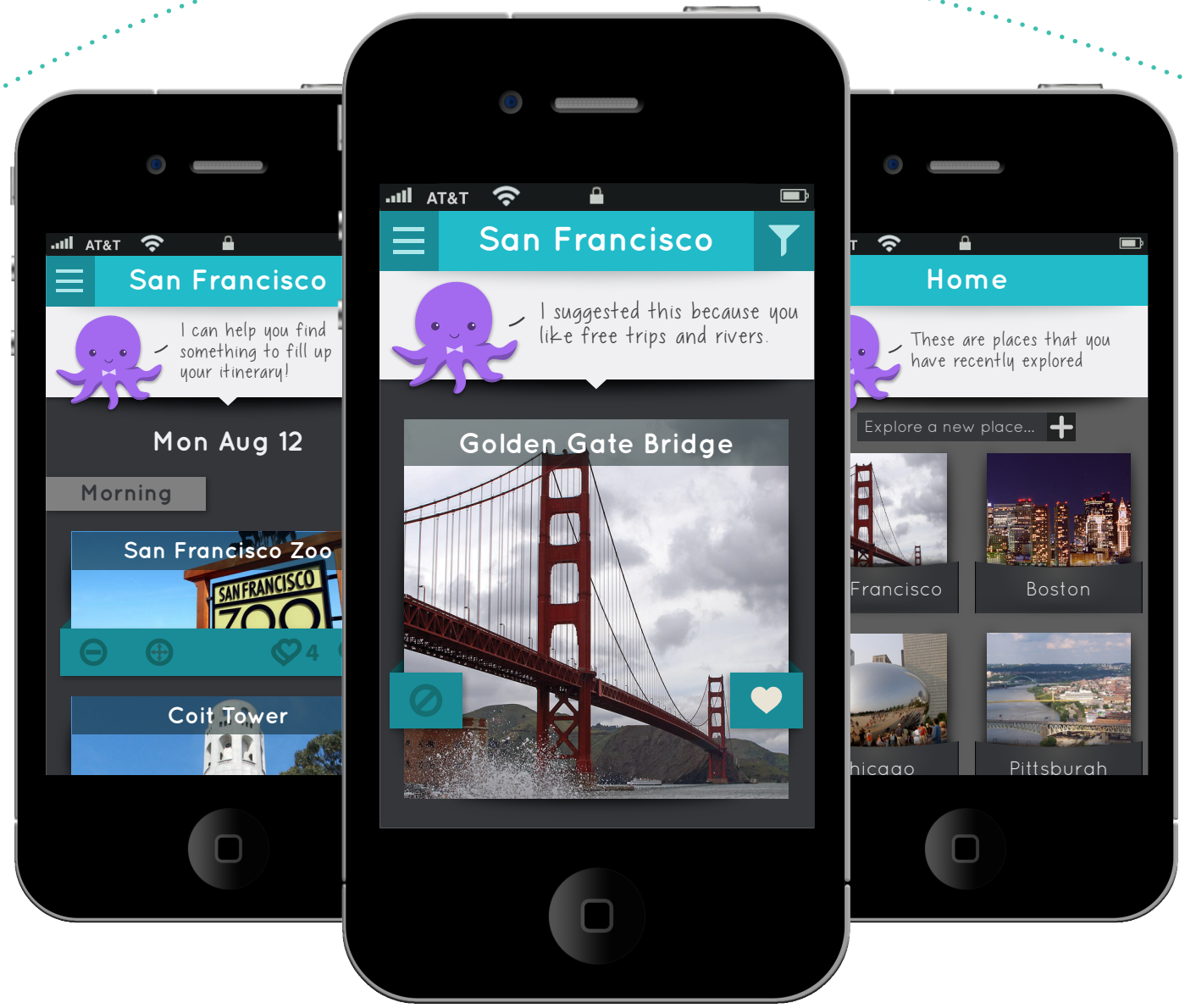
- On Discovery, everyone was able to figure out that if they swiped the pictures a new activity would come up.
- All participants found it fairly easy to move an activity around in their itinerary.

What failed

- Nobody realized that they could tap on Oliver to get more options, such as having him create an itinerary.
- One person tried tapping Oliver to make an itinerary, but never on the correct screen.
- It was not immediately obvious to two people that the swipe gesture would navigate between items in Discovery.
- One person thought Oliver and his speech bubble weren't noticeable.

> I don’t know how to specifically use [Oliver]. I thought I should tap on him, but he isn’t doing anything.

ITERATION 3.2


AT&T
San Francisco
I can help you find something to fill up your itinerary!
Mon Aug 12
Morning
San Francisco Zoo
SAN FRANCISCO ZOO
4
Coit Tower
AT&T
San Francisco
I suggested this because you like free trips and rivers.
Golden Gate Bridge
Home
These are places that you have recently explored
Explore a new place...
Francisco
Boston
Pittsburah

ITERATION OVERVIEW

Changes

Based on testing feedback, we **made Oliver's speech bubble persistent** so that people would not have to guess when they could get more help from Oliver - he would tell them directly. We **moved the navigation to a "hamburger" menu** in order to give the interface more room to breathe and increase the overall cleanliness of the interface.

We also began adding in **design language** to our application. We established a color palette and general feel to our application, which we applied to several of the screens.

In parallel, we started to **increase the fidelity** of the application by coding the Discovery screen.

Testing

Using the early coded version of the Discovery screen, we had participants **interact with the activity cards** to see how they would tend to navigate between cards and use the buttons.

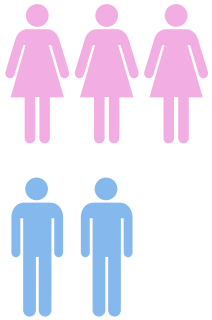
We also used the screens we had mocked up with the design language to do an **interface walkthrough** in order to understand how people felt about Oliver, the application, and our iconography.

Starting with this iteration, we had participants **come to our lab space** and each person completed all the tasks. We also had a **general feedback** section at the end where we asked them directed questions about the application and got overall feedback.

Tasks

1. Explore things to do in San Francisco, selecting activities that you like and dislike.

2. Go through the five main screens of the application. Tell us what you think each item on the screen is and what it would do if you interacted with it.



5 PARTICIPANTS
19-23 YEARS OLD

FEEDBACK

What delighted

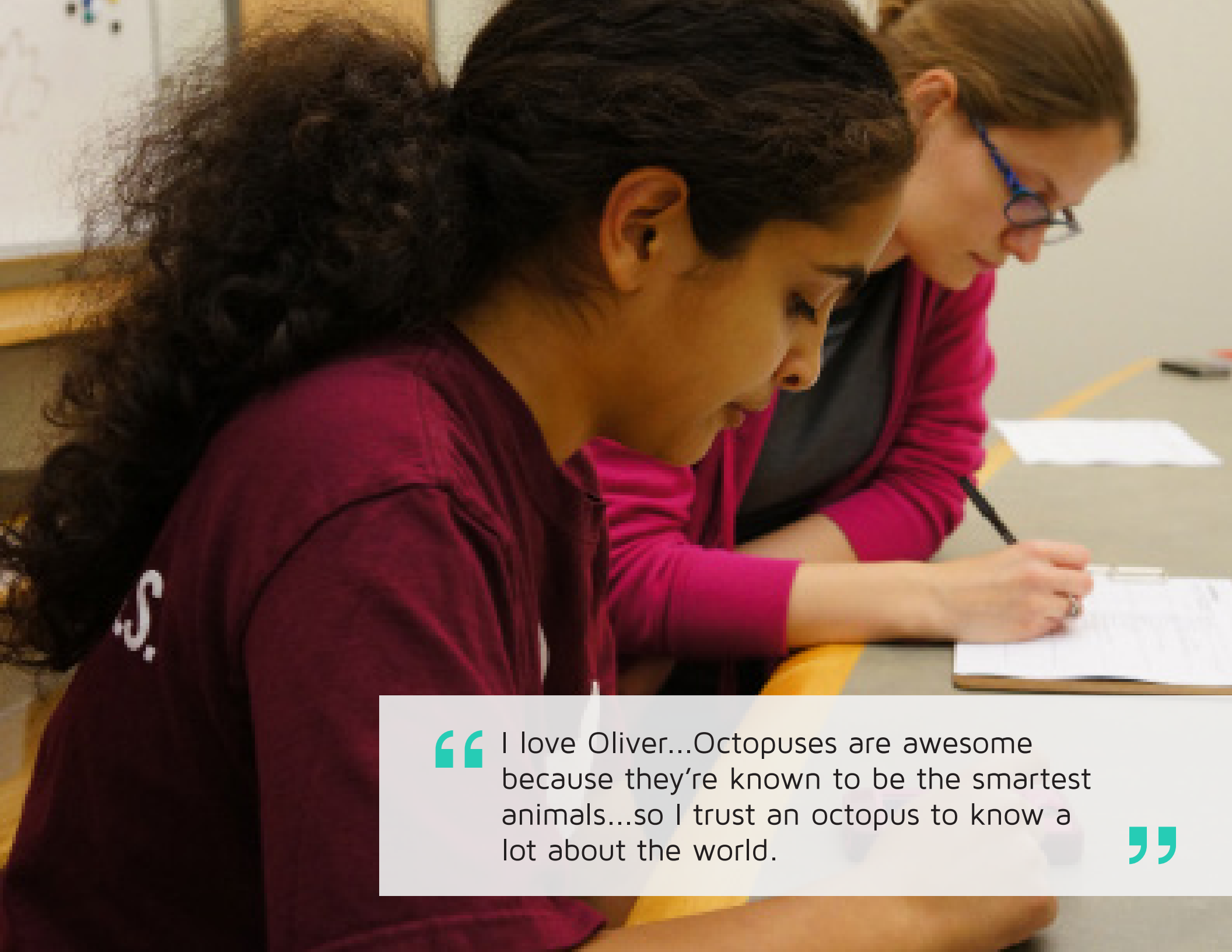
- Everyone liked how much information there was on the backs of the cards.
- Four people were impressed by the variety of categories in the filters.
- Many enjoyed that Oliver could make itineraries and give them suggestions.
- All participants liked the concept of saving favorites in addition to an itinerary.

What worked

- All participants knew to swipe the cards to get to the next one.
- Everyone understood that the heart was to favorite items.
- It was clear to all participants that the unheart icon would remove from favorites.
- Everyone knew that the minus button would remove the activity.
- Most understood that the cancel icon was to hide items.

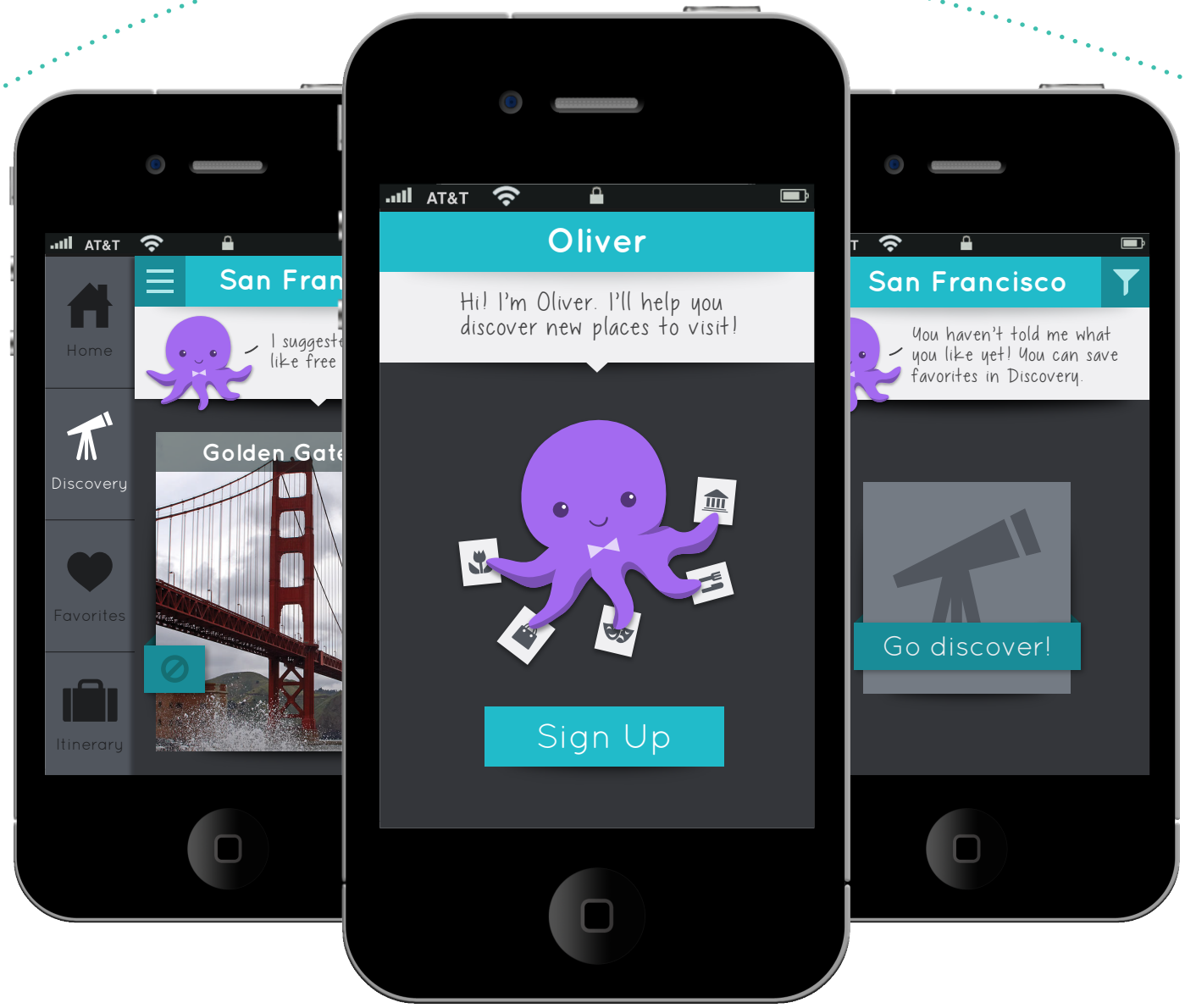
What failed

- It wasn't immediately obvious to anyone that the card could be tapped to flip it over for more info.
- Two people thought the move icon would give them directions.
- Nobody understood what the filter icon was until they got to filters.
- Two people thought the hamburger menu would give them a list of places.
- One person was confused by the delete button, but then figured out its purpose after exploring more.



> I love Oliver...Octopuses are awesome because they're known to be the smartest animals...so I trust an octopus to know a lot about the world.

ITERATION 3.3


AT&T
San Fran
Home
Discovery
Favorites
Itinerary
Golden Gate
AT&T
Oliver
Hi! I'm Oliver. I'll help you discover new places to visit!
Sign Up
San Francisco
You haven't told me what you like yet! You can save favorites in Discovery.
Go discover!

ITERATION OVERVIEW

Changes

This iteration represented a further increase in number of features in our functional prototype. We added **more activities** to Discovery and also **applied our design language**.

We also made the decision to focus on the **"new user" experience** for this iteration, since our previous prototypes centered around the application when it had already been in use for some time. We designed a series of screens representing all the major sections of the application. Oliver guides new users through the application, introducing the purpose of each page. We also added sign-up screens at the beginning and built out the "hamburger" menu for **navigation between different sections**.

Testing

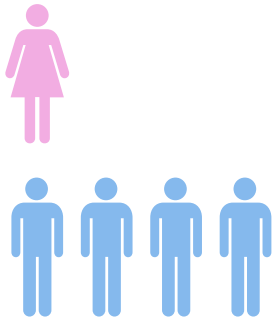
We used two different prototypes for user testing of this iteration. We used a **clickable prototype of the new user screens** to test that experience (these screens can be seen in the screen flow on page 132 of the appendix). We also used the **higher fidelity functional prototype** to test interactions with the Discovery aspect of the application.

We had participants **come to our lab** and complete the tasks. After **prototype testing**, we had participants complete a **card-sorting** exercise on our "hide," "favorite," and "remove from favorites" icons that would help us to redesign these to be more clear. At the end we had a **directed question session** in order to get more general feedback and reactions the application.

Tasks

1. Explore activities in San Francisco. Find more information about some of them. Save ones you like to your favorites and hide ones you don't like.

2. Pretend that you are a new user to the application. Go through these screens and tell us what you think everything is. Also provide feedback on Oliver's comments.



5 PARTICIPANTS
21-30 YEARS OLD

FEEDBACK

What delighted

- During the new user walkthrough, people really enjoyed Oliver's explanations and felt he gave a good overview of the pages.
- Many participants expressed that they really enjoyed the large, colorful pictures.
- Everyone liked how easy it was to browse through activities.

What worked

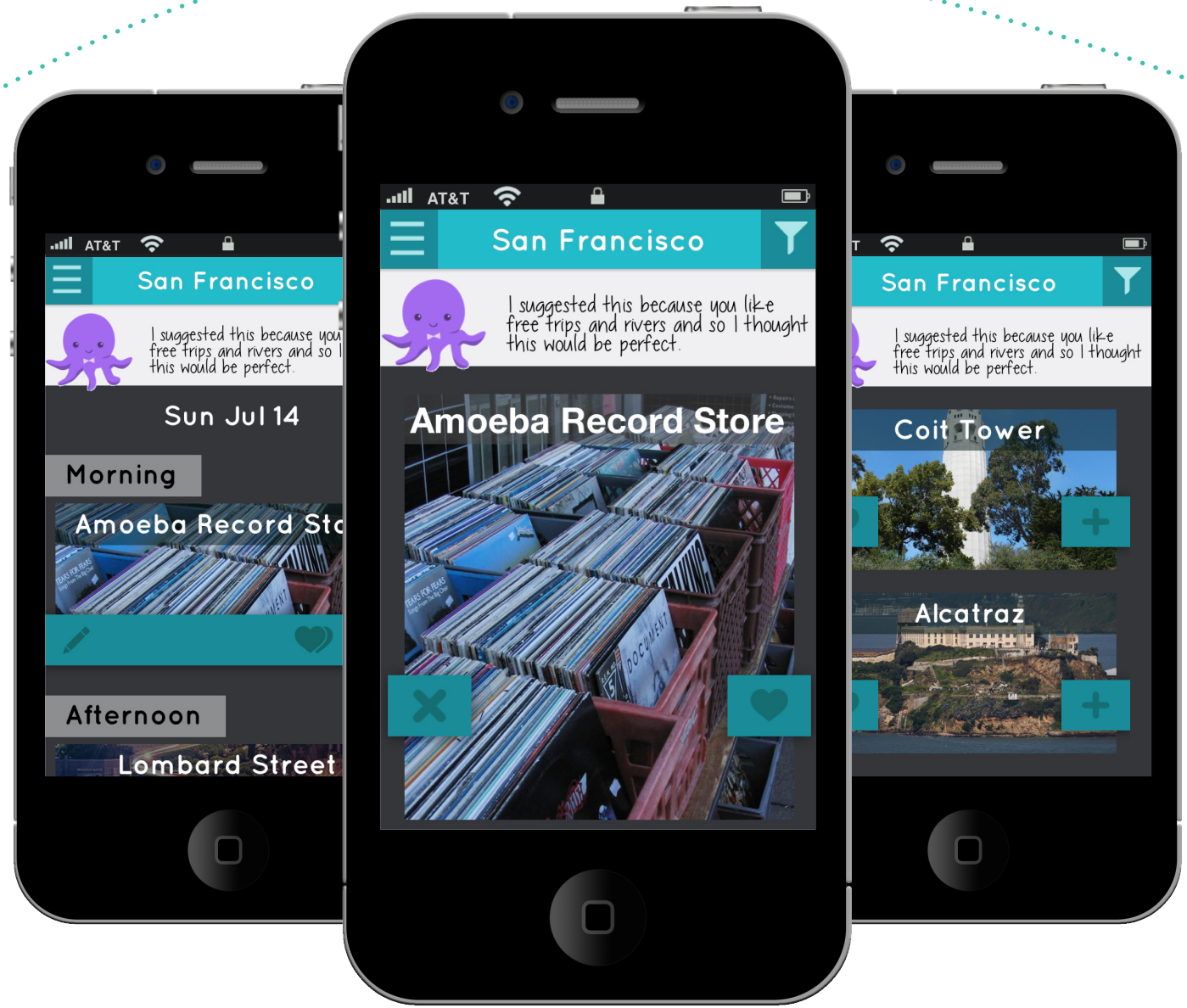
- All participants knew to swipe to the next card.
- Everyone knew how to favorite and hide items.
- Everyone was able to navigate between pages using the "hamburger" menu.
- All participants understood how to set up a new trip.
- Everyone thought the sign-up process was simple.

What failed

- Most participants wanted some kind of feedback when they favorited and hid items.
- It wasn't always immediately apparent that they could tap on the card for more information.
- One person took some time to figure out that the "hamburger" menu was where they could find navigation.
- One person thought Oliver might be less helpful after their first time using the application.

> I like that Oliver tells me what these things are. But it seems like he wouldn't really be useful after the first time.

ITERATION 3.4


AT&T
San Francisco
I suggested this because you like free trips and rivers and so I thought this would be perfect.
Sun Jul 14
Morning
Amoeba Record Sto
Afternoon
Lombard Street
AT&T
San Francisco
I suggested this because you like free trips and rivers and so I thought this would be perfect.
Amoeba Record Store
San Francisco
I suggested this because you like free trips and rivers and so I thought this would be perfect.
Coit Tower
Alcatraz

ITERATION OVERVIEW

Changes

For our final iteration, we attempted to solve as many of the previously identified issues as possible. At this point, most of the changes were minor, since our feedback indicated that the overall mental model and concept of the application was **on the right track**.

On the Discovery page, we changed the icon for "hide" to an X, based on the results of our card sorting activity. We also added **visual feedback** when someone hides or favorites an activity.

On the Itinerary, we consolidated the delete and move functionality into **one "edit" button**. Tapping on this pulls down a menu that allows a person to select another date and time to move the activity to or to delete the activity from their itinerary.

Testing

User testing for our final iteration was done entirely with our **functional prototype**. The Discovery, Favorites, and Itinerary screens were all in place, so our testing revolved around tasks related to those.

We were especially interested in seeing whether **navigation** with a functional version of the "hamburger" menu was user-friendly. It was also a final chance to observe the **overall interactions** with the application and reactions to the concept and Oliver the octopus.

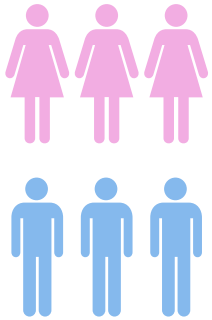
We had our participants **come to our lab** and complete all tasks. Before the tasks, we gave them several minutes to **explore the application**. Afterward, we also had a **guided question section** to get general feedback.

Tasks

1. Explore activities in San Francisco. Hide activities you do not like and favorite activities you do like. Add at least one activity directly to your itinerary.

2. Remove two activities from your favorites list.

3. Remove one activity from your itinerary. Move one activity in your itinerary to a different date and time.



6 PARTICIPANTS
22-58 YEARS OLD

FEEDBACK

What delighted

- Five participants said that the design and colors were bright and refreshing.
- All but one person really enjoyed Oliver and thought he was very delightful.
- Everyone appreciated the large, colorful pictures for each activity.
- Multiple participants liked how organized everything was within the distinct sections.

What worked

- Everyone easily figured out that they needed to swipe to get to the next card in Discovery.
- Everyone understood favoriting and hiding activities.
- All participants knew to navigate using the hamburger menu.
- All participants thought that iconography was clear.

What failed

- For several people, it was not obvious that they needed to tap the card to see more details on the back.
- Five participants did not notice or use the "Add to Itinerary" button on Discovery page.
- Four people wanted a confirmation when they add an activity to their itinerary from Discovery or Favorites.
- One person wanted to know more details about how Oliver knew about him and what he liked.

> He doesn't demand, he just suggests. I might not know what to do and he'll let me know. I appreciate that. I appreciate you, Octopus.

RECOMMENDATIONS

6

110 Recommendations for Expedia

RECOMMENDATIONS FOR EXPEDIA

Implement for Web

While implementing this application as a web service has several advantages, including compatibility with non-mobile devices and no installation process, there are also some disadvantages to be considered. Web applications often offer less control over the user experience. Additionally, web browsers and HTML5/CSS3 are not fully standardized.

A native app has the advantage of being distributed through a reliable source (App Store) and providing faster performance with less network usage, since visuals are preloaded. However, the high cost of time and resources to develop for each separate operating system lead to the recommendation that Oliver be implemented as a web service. We feel that **the ease of access and wide reach of a website would fit within Expedia's business goals.**

Implement A Learning Algorithm

Our prototype included a very basic learning algorithm in order to demonstrate that learning evoked delight. The real service would **need a more robust learning algorithm that would guide travelers to activities that they would love.** The algorithm would have only someone's favorited and hidden activities to learn from, so it would have to be able to figure out preferences from that and **suggest activities based on both individual and group preferences.**

Include Oliver

Both our research and outside scientific research provide evidence that including Oliver in the interface will cause delight and help people trust the application and its suggestions.

Our spring user research revealed that many **people are distrustful of large, faceless travel companies, which reinforced our decision to personify the system through a character.**

Furthermore, many scientific studies (see references on page 146) have shown that **personification can help people relate to the system and feel more comfortable while using it.** Two different studies of conversational agents in pedagogical systems found that these agents were "sufficient to improve subjective experience and also sometimes performance" and that they had a "strong positive effect on students' perception of their learning experience."

In a literature review, Reeves states that character interfaces are successful "because they put a familiar face on computing intelligence." He also discusses research showing that "when characters guide interactions, people trust the information more than in identical interactions without characters" because people have been conditioned to believe that social presence is preferred and desirable.

Finally, our user tests have consistently shown that people love Oliver. They often remark that he is very cute and highly approachable, which are helpful characteristics for a travel guide. These results, along with the evidence from our spring research and outside studies, suggest that **Oliver would be helpful in making the application more personable, delightful, and trustworthy,** which aligns with Expedia's goals.

ABOUT

7

OUR TEAM

Our intrepid travelers come from all over the world and from a variety of backgrounds. We are all master's students in the Human-Computer Interaction Institute at Carnegie Mellon University. Our team has advisory support from faculty at CMU and working professionals in the field.

WANDERLUST

OUR TEAM

DEBRA GLADWIN

User Researcher

Debra studied psychology at Franklin & Marshall College before coming to CMU. She spent one of her semesters studying abroad in Sydney and exploring Australia, and two weeks teaching photography to 8th grade students in Ghana. Although she enjoys visiting her tropical hometown in Florida, she thinks seasons are pretty rad and has lived in Pennsylvania for 5 years. She is excited to one day work someplace where she can design first-rate experiences on a strong foundation of user research.

MICHAEL HELMBRECHT

Project Lead

Michael has lived around the USA and has explored most of the parts he hasn't lived in. He's passionate about finding new experiences in cities all over the world. Before coming to CMU, he studied electrical engineering at Mississippi State University, where he decided that engineering tools weren't beautiful enough to work on for 40 years. He comes from a job making interfaces for NASA planning tools, and looks forward to joining a small startup and designing enthralling experiences that empower people.

KELSEY HUMPHRIES

UX Designer

Kelsey studied biomedical engineering at Johns Hopkins in a former life, where she studied Spanish culture in Madrid and helped with brain-computer interface research in China for a summer. When she got back to the States, she joined the MHCI program at CMU. She's excited about the whole design process, but especially designing for enjoyable user experiences. She's visited four continents so far, and is looking forward to checking the other three off her list.

NISHITA MUHNOT

Interaction Architect

Nishita has lived in several cities in India and moved 9 times. She spent a great part of her childhood on the beautiful island of Mauritius off the coast of South Africa. Prior to coming to CMU, she studied engineering in Information Science and worked for a multinational company as a well a startup. She believes in efficient and clean interfaces and wants to be an interaction designer after the MHCI program. She also loves traveling and dreams of going to all the continents of the world.

YING WANG

Visual Designer

Ying majored in telecommunications engineering in undergrad, and is enjoying her transition into a visual and interaction designer. She loves that she gets to be creative every day in the MHCI program. She can always be seen sketching out cool ideas or creating adorable characters. She can't resist cute animals and will make a non-human noise when she sees them. She loves the sea and has traveled to five seashore cities along the eastern coast of China.

OUR PROGRAM

The Carnegie Mellon Human-Computer Interaction Institute is an interdisciplinary community of students and faculty dedicated to research and education in topics related to computer technology in support of human activity and society. The Master's program is a rigorous 12-month curriculum in which students complete coursework in programming, design, psychology, HCI methods, and electives that allow them to personalize their educational experience. During their second and third semesters, the students participate in a substantial Capstone Project with an industry sponsor.

The Capstone Project course curriculum is structured to cover the end-to-end process of a research and development product cycle, while working closely with an industry sponsor on new ideas that may work with their existing human-to-machine technology. The goal of this 32-week course is to give each student the opportunity for a "real-life" industry project, similar to an actual experience in a research/design/development setting.

Company sponsors benefit from the innovative ideas produced by the students, to fix existing systems or reach into new markets. Some companies also use this project as a recruiting tool, offering industry positions to the top producers in their project team.

Contact

For questions about the content, or to learn how to sponsor a project, please contact:

Jenna Date, Associate Teaching Professor

jdate@cs.cmu.edu

412 268 5572

Human-Computer Interaction Institute

Carnegie Mellon University

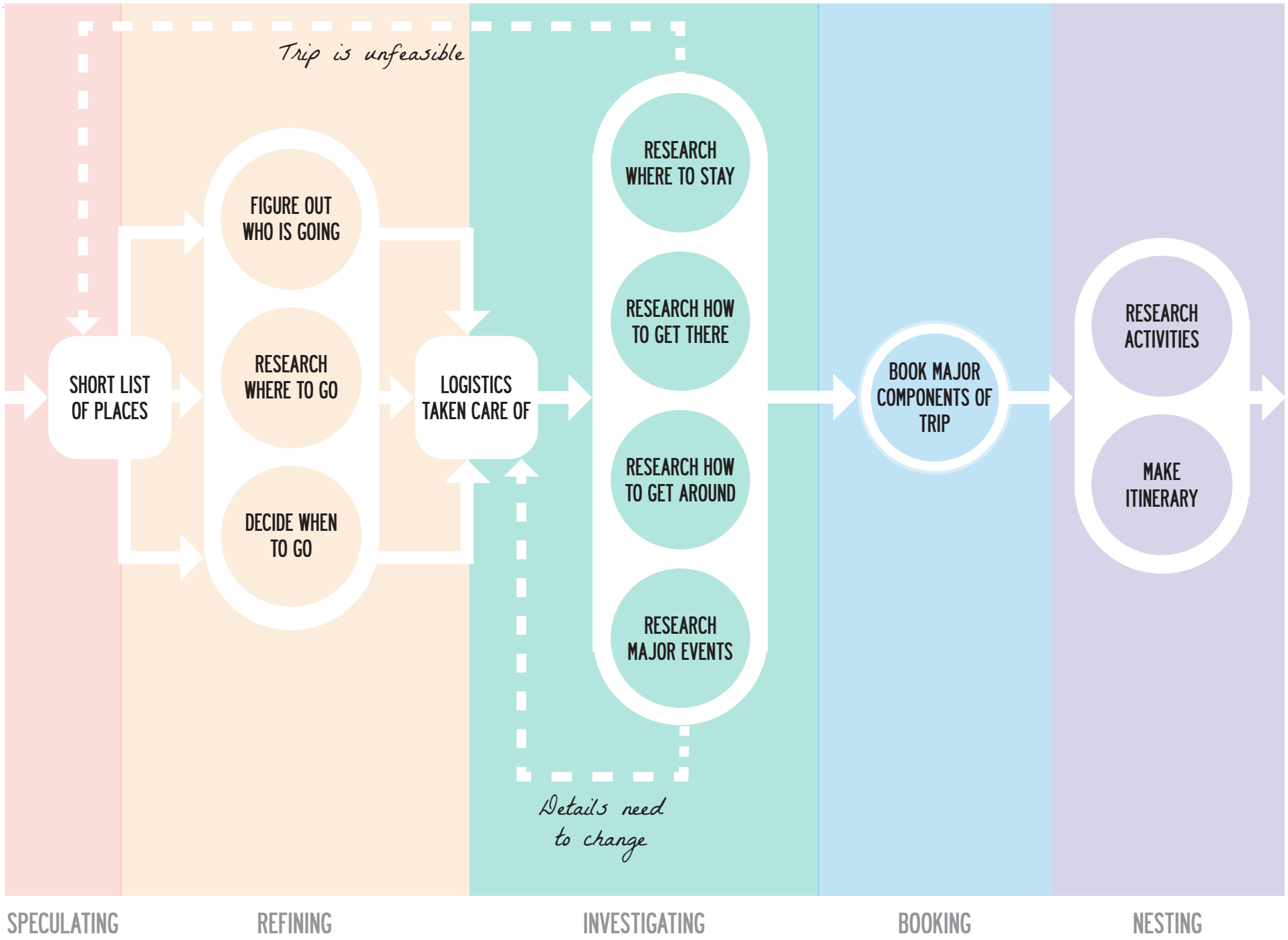
Pittsburgh, PA

APPENDIX

8

USER JOURNEY

This diagram shows the user journey through the travel planning process. The table on the following pages details needs, thoughts/feelings, barriers, touchpoints, content, and features that the user encounters. You can read more about these on page 20.


Trip is unfeasible
SHORT LIST OF PLACES
FIGURE OUT WHO IS GOING
RESEARCH WHERE TO GO
DECIDE WHEN TO GO
LOGISTICS TAKEN CARE OF
RESEARCH WHERE TO STAY
RESEARCH HOW TO GET THERE
RESEARCH HOW TO GET AROUND
RESEARCH MAJOR EVENTS
BOOK MAJOR COMPONENTS OF TRIP
RESEARCH ACTIVITIES
MAKE ITINERARY
Details need to change
SPECULATING
REFINING
INVESTIGATING
BOOKING
NESTING

	I have a short list of places	I figure out where to go	I figure out who is going
Needs	• I need to choose one place.	• I need to know which places I will enjoy most. • I need to know which places I can afford. • I need to know which places will be most convenient.	• I need to know who is going with me. • I need to know when they can go. • I need to know what others will pay. • I need to know what others like.
Thoughts+Feelings	• I'm excited to choose one place. • I'm unsure of where to go.	• I'm confused about where to go. • I am overwhelmed by all the information. • I am frustrated that I can't find the info I need.	• I'm excited to travel with others. • I am frustrated that others aren't giving me the info I need. • I'm worried that people will back out.
Barriers	• I don't have enough time. • I think the trip is too far in the future. • I am not sure how much money I have.	• There's too much irrelevant information. • I can't find the information I need. • There's too many places to choose from. • I don't know info about who or when.	• I don't have others' schedules. • I don't have others' approval. • I don't have info on where or when.
Touchpoints	• People • Advertisements • Television shows • Blogs	• People you are traveling with • People who have been there • Blogs • Travel books • Booking sites • Travel review sites	• People you are traveling with
Content	• List of places	• Prices • Reviews • Descriptions • Recommendations • Pictures • Comparisons • Maps	• Prices • Schedules • Lists of who's going • Descriptions • Preferences
Features	• Price range filter • Review aggregation • Trip category filter	• Price range filter • Review aggregation • Trip category filter • Maps • Email everyone • Collaborative commenting	• Email everyone • Collaborative commenting • Collaboration roles • Polls

I figure out when to go	I research the basic components of the trip	I book the basic components	I research activities and make an itinerary
• I need to know when I am available. • I need to know when it is cheapest to go. • I need to know when it is best to go to this location. • I need to know when there are events.	• I need to know the cheapest way to get there. • I need to know where to stay. • I need to know how to get around. • I need to know prices of big activities. • I need to know about major events. • I need to keep track of what I've seen. • I need to keep on track with planning.	• I need to decide where to book. • I need to commit to plans. • I need to feel I am getting a good deal. • I need to trust the site.	• I need to know what activities to do. • I need to know when I will do activities. • I need to find good advice. • I need to know what everyone will enjoy most. • I need to keep all my stuff organized. • I need to know what I can afford.
• I'm frustrated that I don't know when I can go.	• I'm frustrated by changing prices. • I worry about missing a deal. • I am frustrated that it's too expensive. • I am confused by so many choices. • I am frustrated by the lack of choices. • I distrust the information I'm getting.	• I feel relieved that my plans are made. • I feel guilty about spending money. • I worry that I'll find a better deal later. • I worry I made the wrong decision. • I distrust the information I am getting. • I am not sure I'm getting a good deal.	• I am relieved that things are booked. • I am overwhelmed by the choices. • I am disappointed by lack of activities. • I am frustrated trying to fit activities in. • I don't know how to organize. • I am satisfied completing my plan.
• I don't have my schedule. • I don't know enough about where I am going. • I don't have info on who or where.	• There is too much information. • There are hidden costs/high prices. • I lack confidence, time, information. • I procrastinate. • I miss out on a good deal. • I can't keep track of what I've seen.	• The prices have changed. • Things have sold out. • I don't have money. • Other people haven't decided. • I lack confidence. • I haven't been able to keep track of prices.	• Things have sold out. • I don't have enough time/money. • I'm not sure what will be fun. • People all like different things. • I can't keep my research organized. • I can't get any good advice. • I can't choose! • There's nothing I'm interested in.
• People you are traveling with • People who have been there • Blogs • Weather sites • Travel review sites • Travel books • Booking sites	• Travel review sites • People you are traveling with • People who have traveled • Forums • Blogs • Booking sites • Activity sites	• Booking sites • People you are traveling with	• People you are traveling with • People who have been there • Booking sites • Travel books • Blogs • Travel shows • Review sites • Activity sites
• Prices • Reviews • Weather • Events • Descriptions • Pictures • Recommendations • Schedules	• Prices • Reviews • Events • Descriptions • Pictures • Price history • Research history • Recommendations	• Prices • Price History • Research History	• Prices • Curated plans • Pictures • Recommendations • Reviews • Events • Maps
• Email everyone • Research history • Automatic schedule maker • Email everyone • Polls	• Reminders • Maps • Progress bar • Travel package • Research history • Price range filter • Price history • Reviews • Trip category filters	• Progress bar • Travel package • Research history • Price history • Badges • Book everything at once button • Share travel package • Export & print	• Plan viewer • Research history • Maps • Travel package • Automatic schedule maker • Price range filter • Reviews • Itinerary suggestions • Trip category filter • Polls

ACHIEVABILITY MATRIX

We ideated 53 different potential features for our product. We then grouped these based on four different areas and placed them on an achievability matrix based on their ease of implementation and impact. From there, we chose twenty features to implement in our first design. These features are the ones that glow in the following matrix. For more details on this, see page 20.

features

ORGANIZATION/PROGRESS

1. bucket and wish list
2. identify stage
3. satisfying and lovely plan viewer
4. export and print
5. badges
6. big events calendar
7. virtual journal
8. daily discovery emails
9. reminders and prods to move forward
10. warning when things are about to sell out
11. maps (things to do, what you're doing)
12. progress bar
13. to-do list with deadlines
14. book everything at once button
15. travel package
16. keep trips separated
17. research diary/history
18. automatic schedule maker

PRICE

19. show fun stuff while booking
20. price alerts
21. price range filters
22. price history tracker
23. cost calculator for how to get there
24. what other people have bought
25. booking site comparison
26. price prediction
27. bang for your buck calculator
28. price drop guarantee

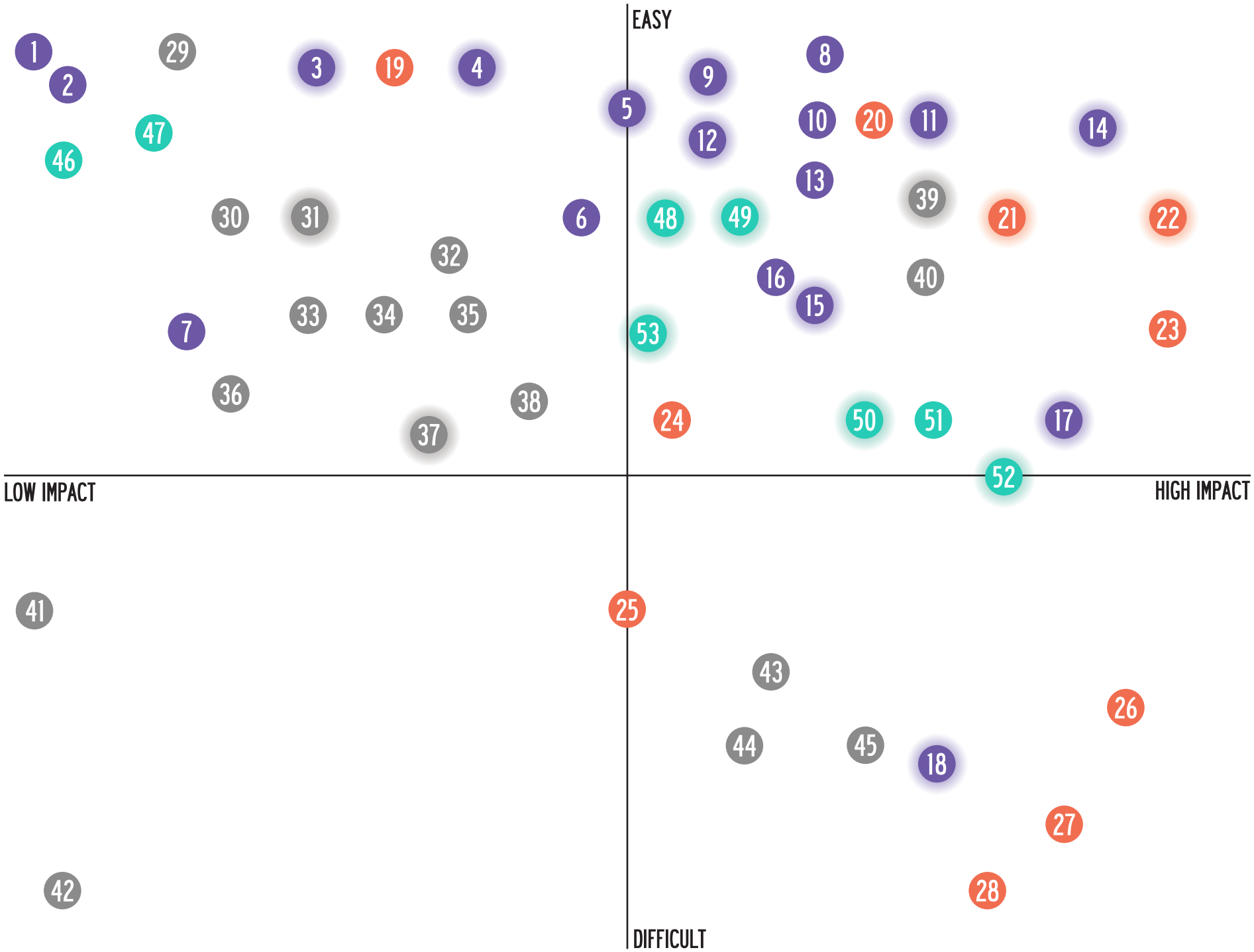
SUGGESTIONS

29. suggest cheaper vacations
30. following
31. review aggregation
32. links to blogs about places
33. tagging
34. photos from friends' trips
35. quick ratings of locations
36. micro polls
37. itinerary suggestions
38. advice from friends who have been there
39. trip category filters
40. location-specific table
41. TV show location finder
42. travel personality test
43. recommendations from similar people
44. qualifications for people giving advice
45. need advice button

COLLABORATION

46. assign tasks
47. list of people going
48. email everyone
49. collaborative commenting
50. collaboration roles
51. RSVP
52. share travel package
53. polls

bold = features we intended to include


EASY
DIFFICULT
LOW IMPACT
HIGH IMPACT
1
2
29
3
19
4
47
46
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31
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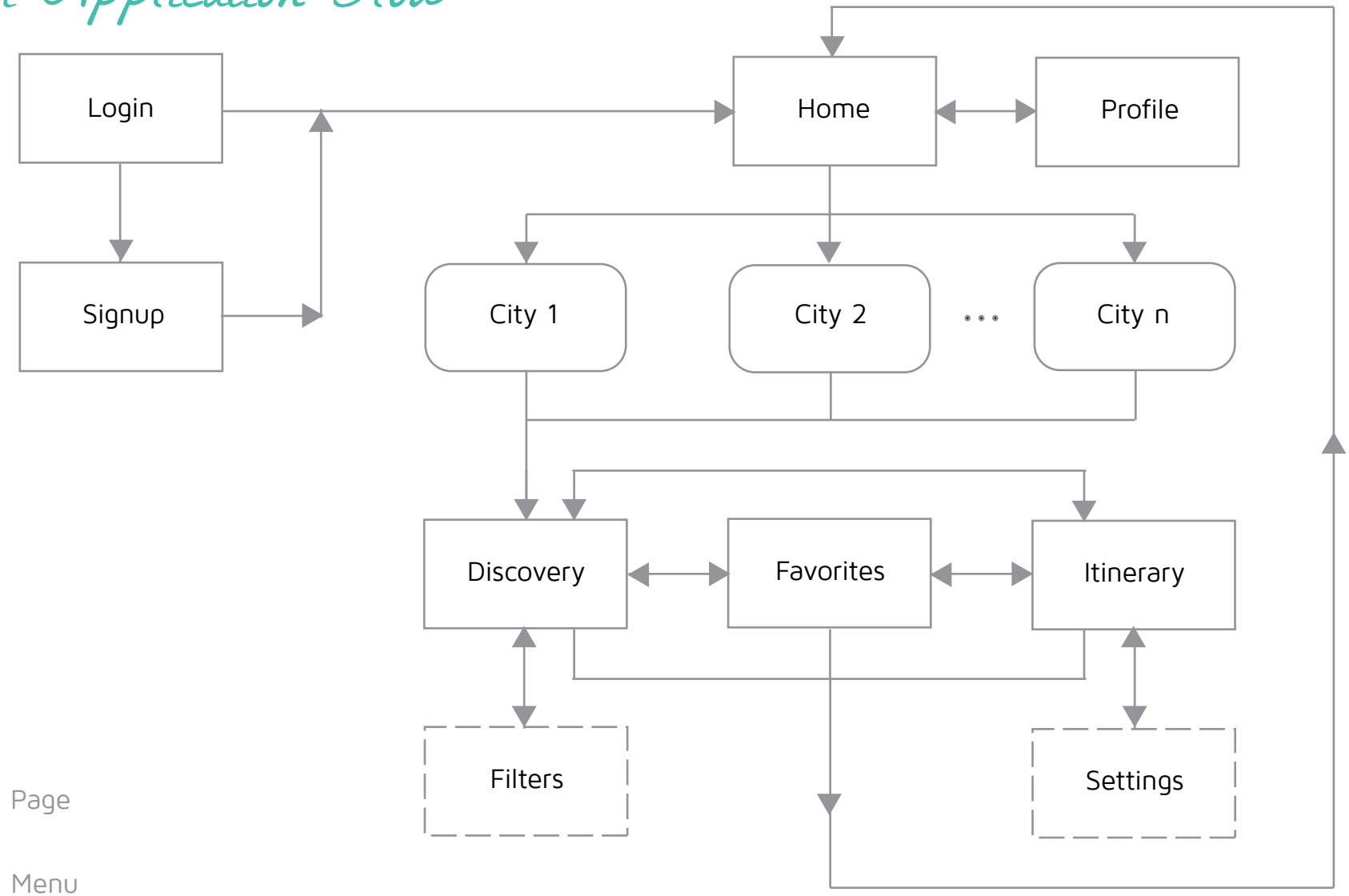
28

DESIGN SPEC

The following pages contain a detailed design spec for the Oliver application, including an application flow (on facing page), a screen flow, and a visual spec of several screen and all common interface elements.

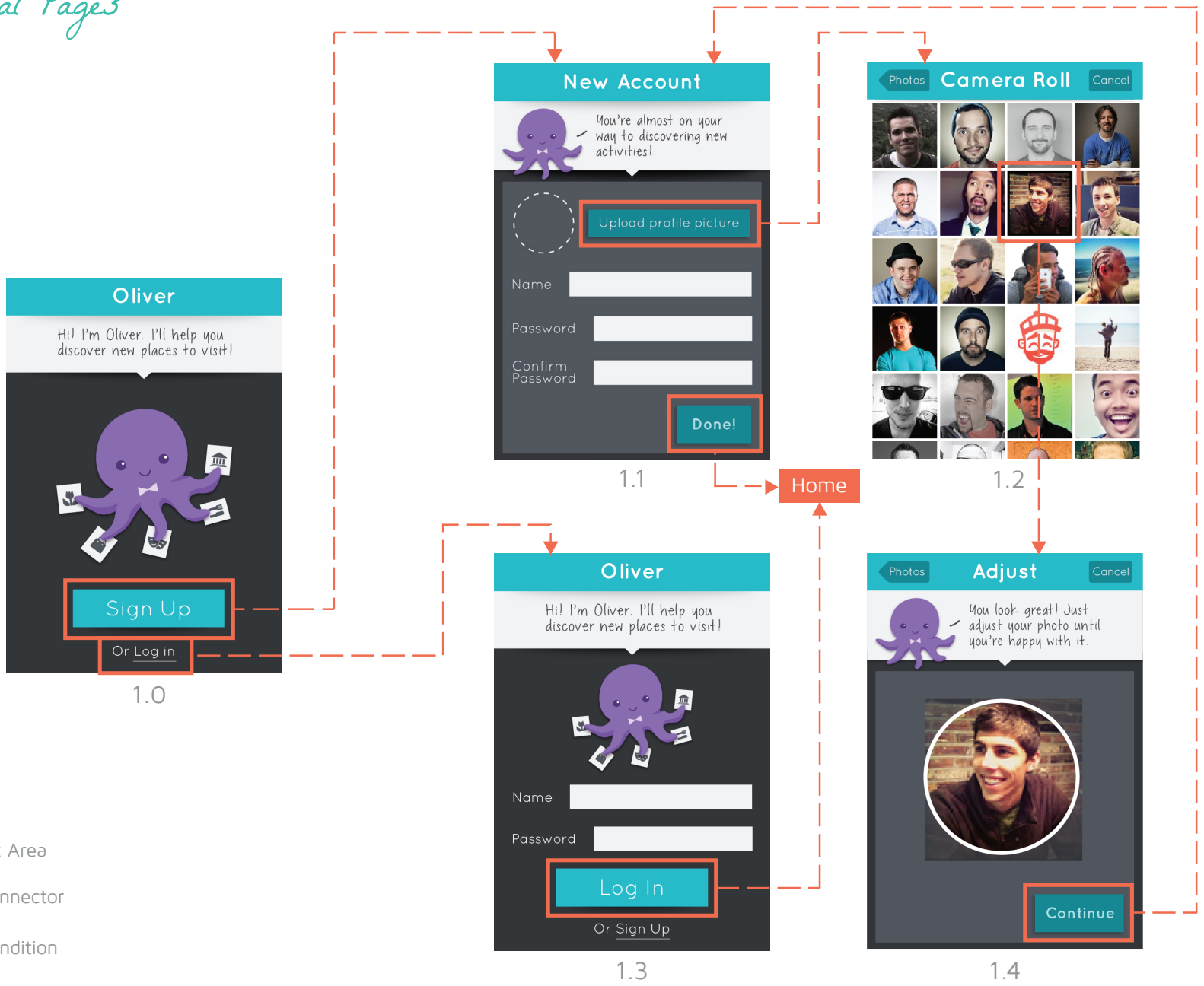
Oliver Application Flow



SCREEN FLOW

The subsequent screen flow diagram shows all the screens for a new user as well as for an existing user. The default trigger for screen change is tap unless specified otherwise.

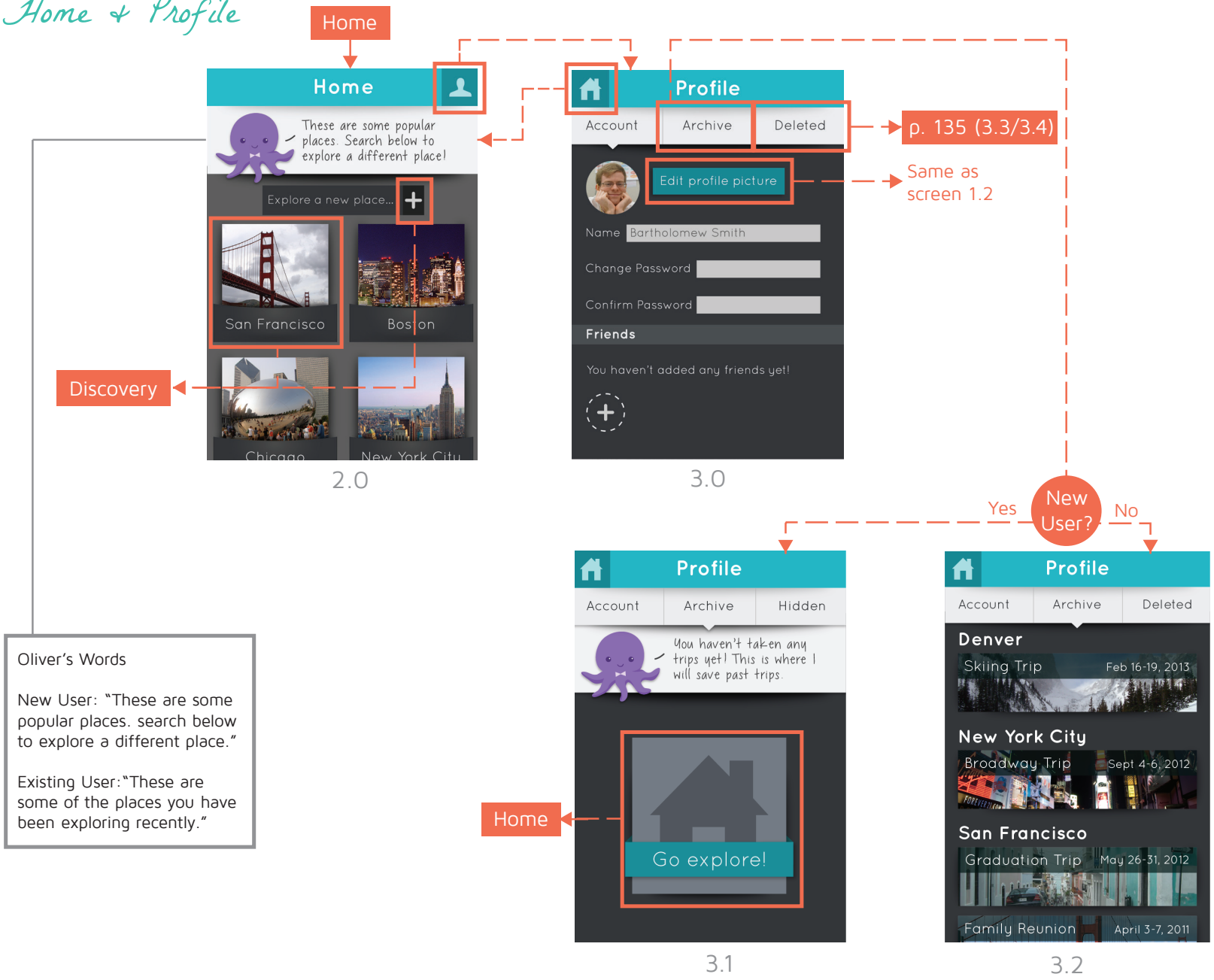
Initial Pages

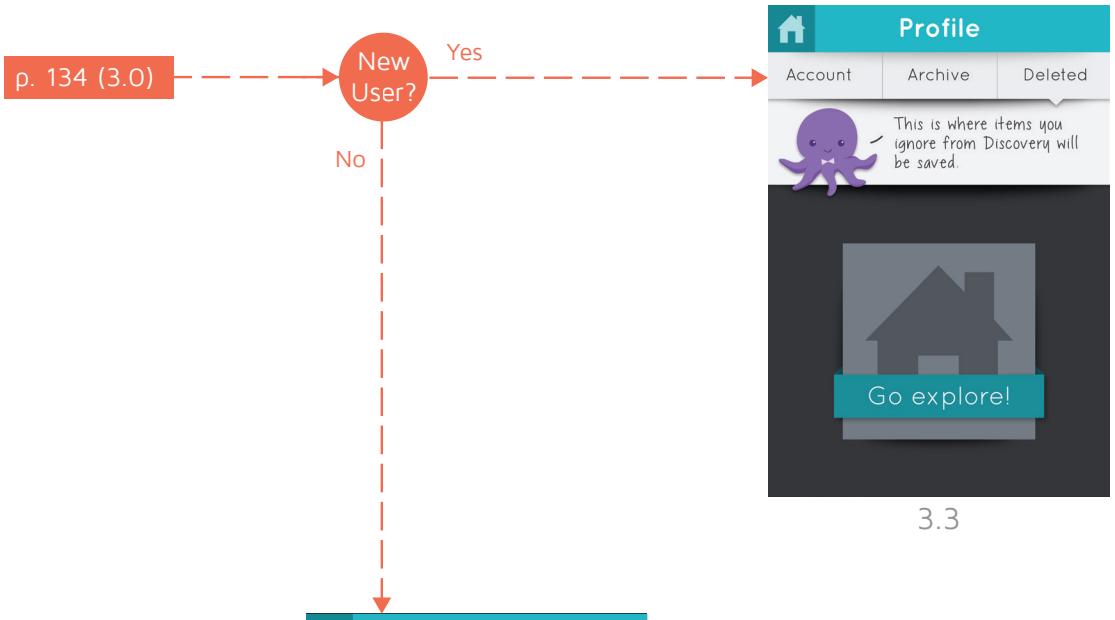


KEY

- Hit Area
- Connector
- Condition

Home + Profile




p. 134 (3.0)
New User?
Yes
No
Profile
Account
Archive
Deleted
This is where items you ignore from Discovery will be saved.
Go explore!
Profile
Account
Archive
Deleted
Sort by:
Date
Name
City
June 25, 2013
Baker Beach
San Francisco
Fisherman's Wharf
San Francisco
Ocean Beach
San Francisco
Ellis Island
New York City
June 19, 2013
Duck Boat Tour
San Francisco

3.3

3.4

Discovery

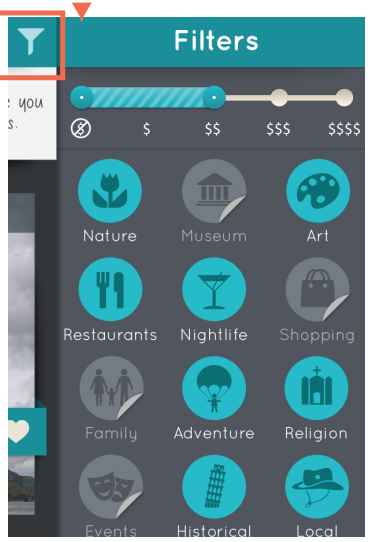
p. 137 (5.0)

*Oliver's Words

New User: "I can personalize these suggestions once you have told me whether you like a few of these activities"

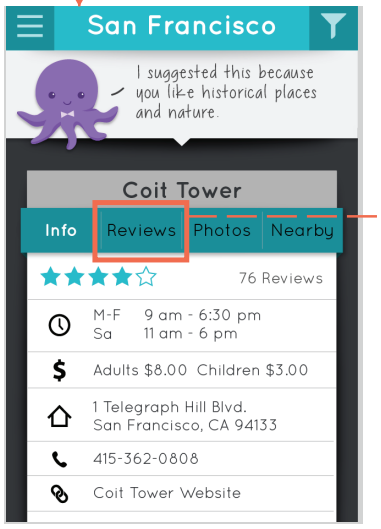
Existing User:"I suggested this because.."

4.0

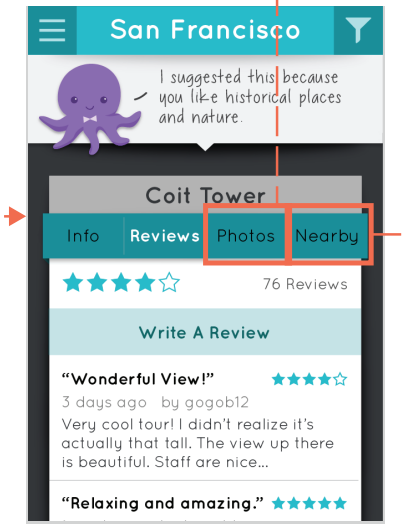


4.1

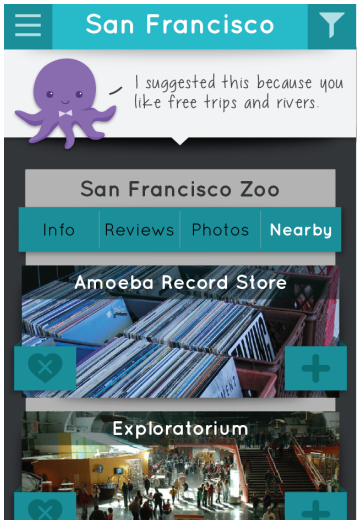
4.5



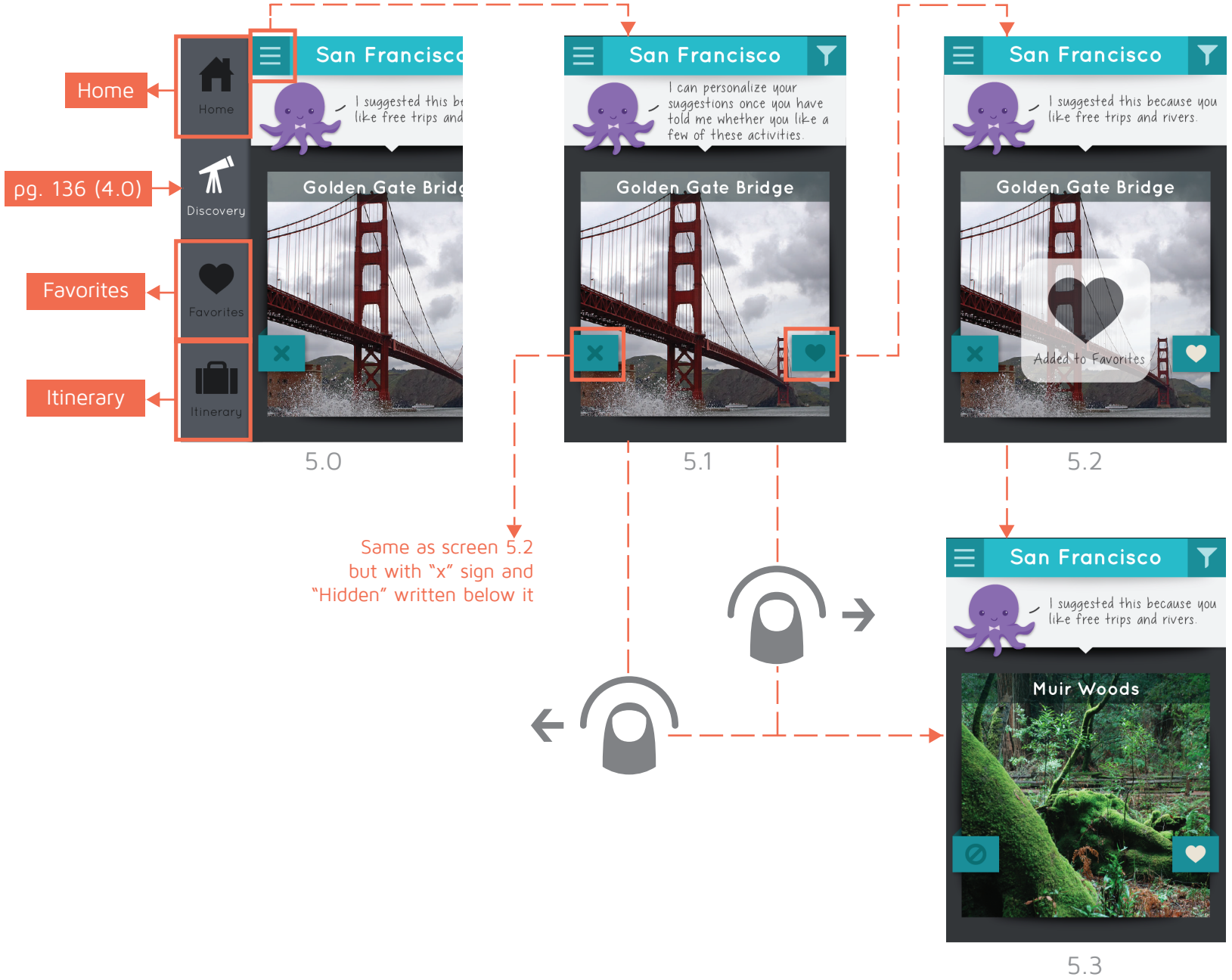
4.2



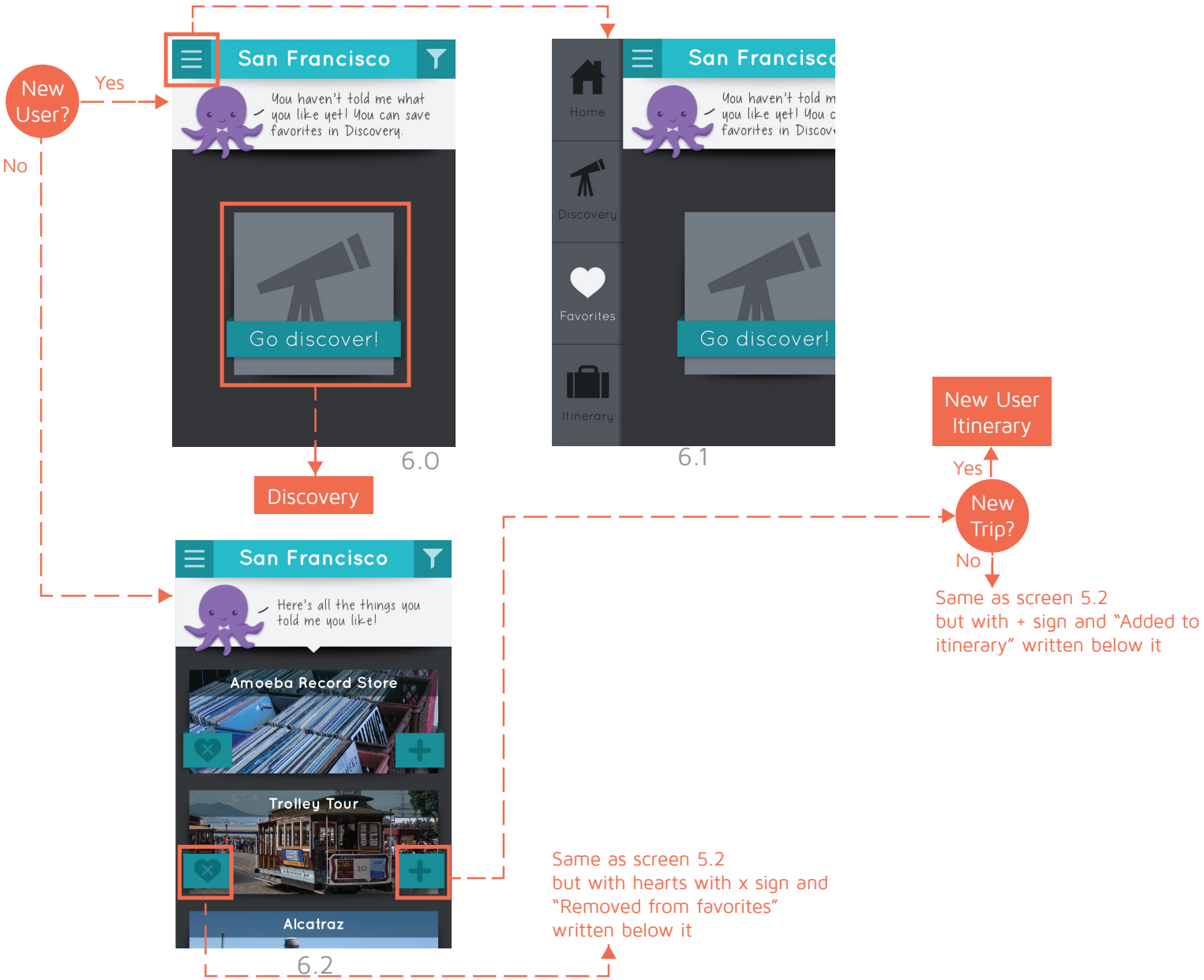
4.3



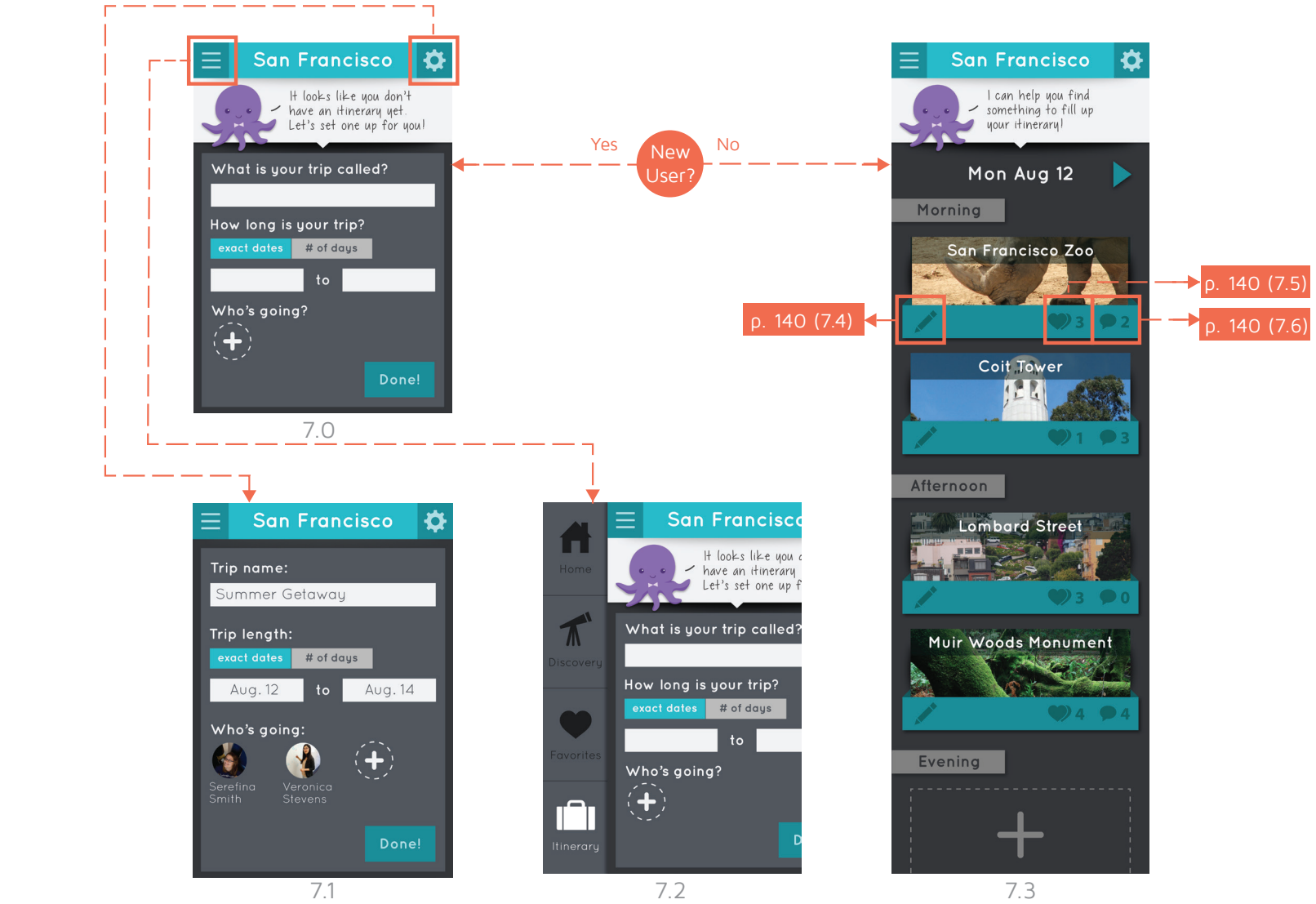
4.4


Home
pg. 136 (4.0)
Favorites
Itinerary
Home
Discovery
Favorites
Itinerary
San Francisco
I suggested this be
like free trips and
Golden Gate Bridg
5.0
San Francisco
I can personalize your
suggestions once you have
told me whether you like a
few of these activities.
Golden Gate Bridge
5.1
San Francisco
I suggested this because you
like free trips and rivers.
Golden Gate Bridge
Added to Favorites
5.2
Same as screen 5.2
but with "x" sign and
"Hidden" written below it
San Francisco
I suggested this because you
like free trips and rivers.
Muir Woods
5.3

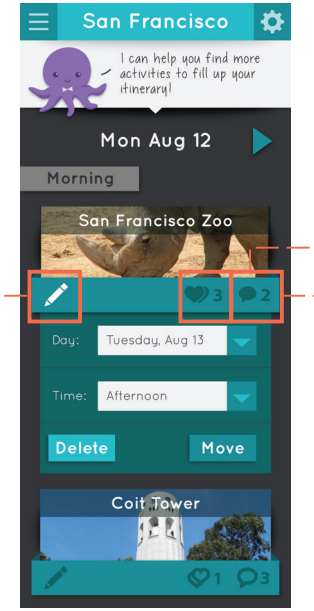
Favorites


New User?
Yes
No
San Francisco
You haven't told me what you like yet! You can save favorites in Discovery.
Go discover!
6.0
Discovery
Home
Discovery
Favorites
Itinerary
San Francisco
You haven't told me what you like yet! You can save favorites in Discovery.
Go discover!
6.1
New User Itinerary
Yes
New Trip?
No
Same as screen 5.2 but with + sign and "Added to itinerary" written below it
San Francisco
Here's all the things you told me you like!
Amoeba Record Store
Trolley Tour
Alcatraz
6.2
Same as screen 5.2 but with hearts with x sign and "Removed from favorites" written below it

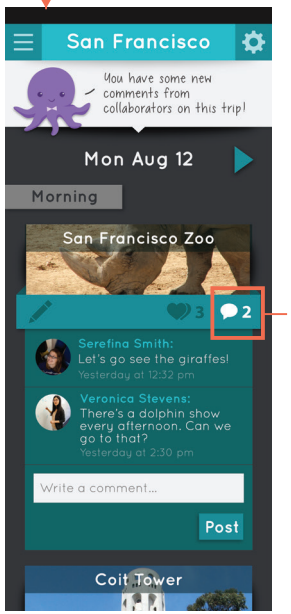
Itinerary


San Francisco
It looks like you don't have an itinerary yet. Let's set one up for you!
What is your trip called?
How long is your trip?
exact dates
# of days
to
Who's going?
Done!
7.0
Yes
New User?
No
San Francisco
I can help you find something to fill up your itinerary!
Mon Aug 12
Morning
San Francisco Zoo
Coit Tower
Afternoon
Lombard Street
Muir Woods Monument
Evening
p. 140 (7.4)
p. 140 (7.5)
p. 140 (7.6)
San Francisco
Trip name:
Summer Getaway
Trip length:
exact dates
# of days
Aug. 12
to
Aug. 14
Who's going:
Serefina Smith
Veronica Stevens
Done!
7.1
Home
Discovery
Favorites
Itinerary
San Francisco
What is your trip called?
How long is your trip?
exact dates
# of days
to
Who's going?
7.2
7.3

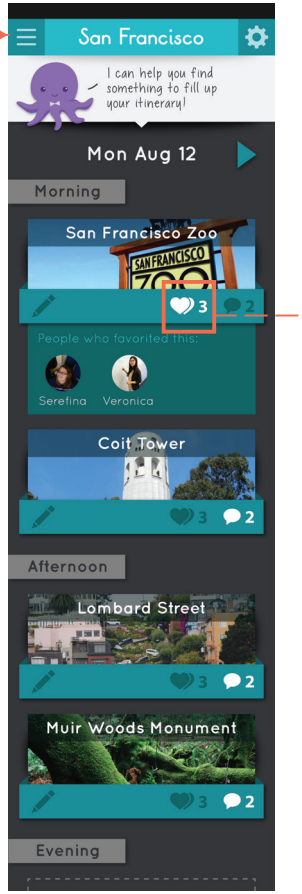
p. 139 (7.3)



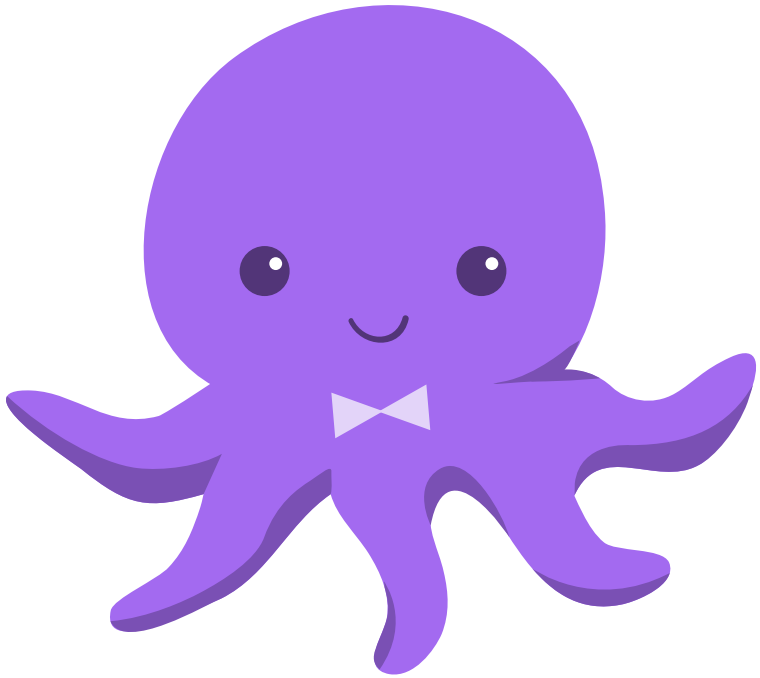
7.4



7.5



7.6

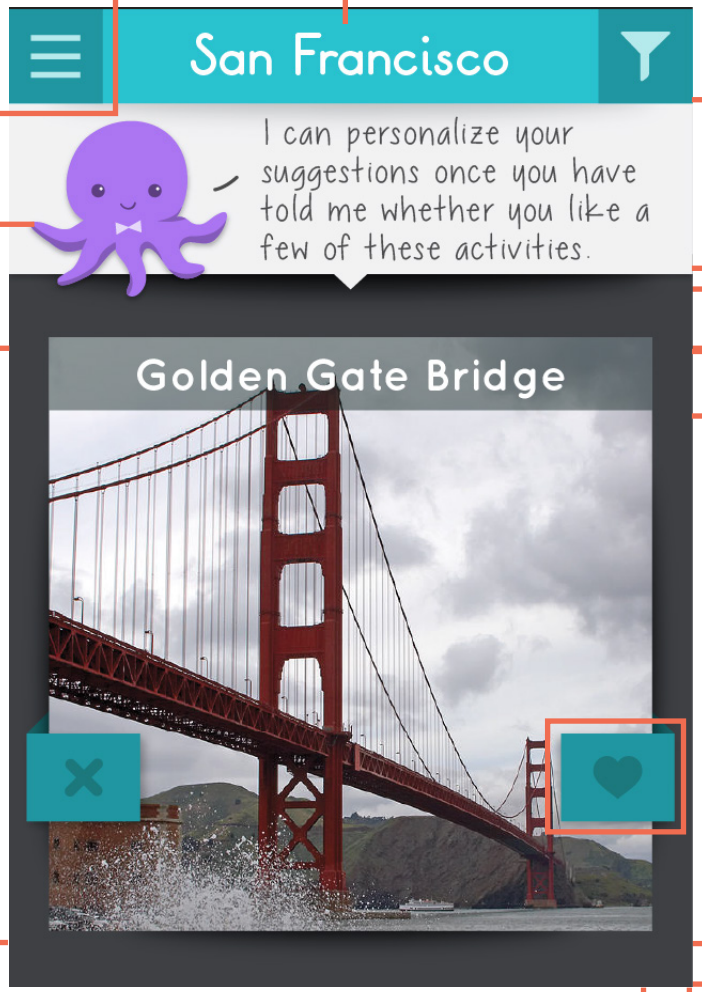


VISUAL SPEC

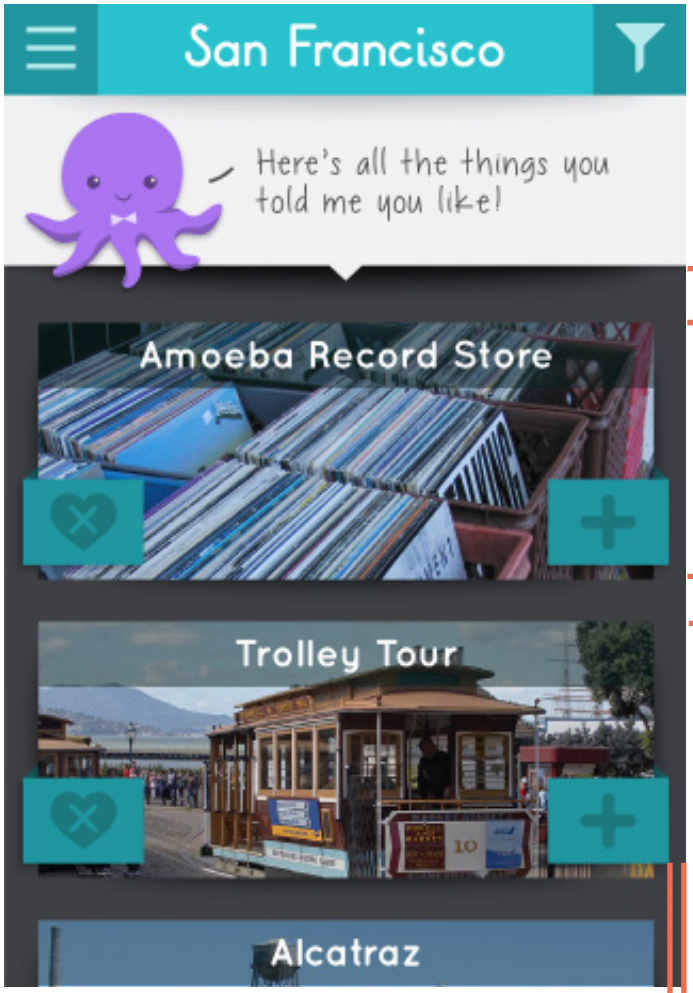
The following pages contain detailed design specs for two of our main screens (Discovery and Favorites). On the facing page is a toolkit, which contains all of the elements used throughout all screens of the application.


San Francisco
Account
Archive
Deleted
You haven't told me what you like yet! You can save favorites in Discovery.
3
2
Baker Beach
San Francisco
exact dates
# of days
$
$$
$$$
$$$$
Go discover!
Golden Gate Bridge
Explore a new place...
San Francisco
Broadway Trip
Sept 4-6, 2012
San Francisco Zoo
Day:
Tuesday, Aug 13
Time:
Afternoon
Delete
Move
San Francisco Zoo
People who favorited this:
Serefina
Veronica
San Francisco Zoo
Serefina Smith:
Let's go see the giraffes!
Yesterday at 12:32 pm
Veronica Stevens:
There's a dolpin show every afternoon. Can we go to that?
Yesterday at 2:30 pm
Write a comment...
Post
Home
Discovery
Favorites
Itinerary
Home
Discovery
Favorites
Itinerary
Added to Favorites

DISCOVERY


#21BBCCA
Elega Rounded Medium
H:44px
#198c98
W: 44px
H: 44px
San Francisco
I can personalize your suggestions once you have told me whether you like a few of these activities.
W: 92px
H: 82px
#FOFOF2
Chocolate Covered Rain Drops
H: 80px
H: 44px
Quicksand Bold
H: 34px
Golden Gate Bridge
W: 325px
H: 440.5px
#21BBCCA
W: 53px
H: 41px
H: 29px
W: 18.5px

FAVORITES


San Francisco
Here's all the things you told me you like!
Amoeba Record Store
Trolley Tour
Alcatraz
H: 26.5px
H: 120.5px
H: 20px
W: 8px

REFERENCES

Reeves, B. (2000). The Benefits of Interactive Online Characters. Center for the Study of Language and Information, Stanford University.

Krämer, N., Simons, N., & Kopp, S. (2007). The Effects of an Embodied Conversational Agent´s Nonverbal Behavior on User´s Evaluation and Behavioral Mimicry. In "Intelligent Virtual Agents."

Lester, J., Converse, S., Kahler, S., Barlow, S., Stone, B., & Bhogal, R. (1997). The persona affect: Affective impact of animated pedagogical agents. In "Proceedings of the Eighth World Conference on Artificial Intelligence in Education."

DIGITAL APPENDIX CONTENTS

Illustrator files

user feedback videos

photos

final presentation

spring research report