DayTrippr

UI Design Final Project
DROP TABLE teams
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Overall Process

The goal of the project was to implement a user-friendly app that allowed for individuals to explore New York City whether they were a traveler ready to explore, or a local interested in learning new spots. In addition, we also wanted to create a platform that allowed for individuals to submit a list of their favorite activities as trip itineraries. Consequently, we created DayTrippr to serve as the perfect platform for any explorer. The website's goal is to contain thousands of submitted trip itineraries for New York City with each trip itinerary suggesting a list of activities

any person can visit in a day. Ideally, DayTrippr will be updated daily with new day trip suggestions and allow for adventurers to explore new travel routes and events. Unlike conventional sites listing top vacation spots, DayTrippr aims to provide the explorer with a database of planned travel routes from which the user can choose and more efficiently plan his or her schedule. It will also allow locals to give tourists an authentic view of New York City!

At a high level, we carefully planned the design of the app to fully incorporate everything learned this semester. In the very beginning, we first took a quick look at the APIs and brainstormed possible concepts before coming up with DayTrippr since it would fully utilize the APIs surrounding Google Maps. Then we sketched drawings to roughly figure out the design of the website and the overall layout. This often involved going through several different iterations of our designs, improving upon the design heuristics we learned in class for each iteration. We then took time to implement these designs using Balsamiq and designed a Hi-Fi prototype. After reviewing our conceptual design a few times and establishing a rough framework, we began coding. When the website was mostly done, we tested DayTrippr ourselves pretending to be the user scenarios and went back to make a few changes. We will outline these changes in the description of our testing process below. Finally, we wrote up all the notes along the way to create the development doc in addition to finishing other parts of the submission including a brief user manual, video, screenshots, overview paragraph, and permission use.

Team Responsibilities

Overall, everyone contributed equally to the user manual, video, and remaining project requirements. However, each of us took on an individual role that we focused on:

- Matt Piccolella: Main Code Developer
- Darren Chen: Part-Time Developer and Main Documenter
- Linnan Wang: Part-Time Developer and Main Documenter
- Britain Carter: Main Hi-Fi Creator, Part-Time Developer and Documenter

Target Users and Personas

When building our application, there were two target users we kept in mind throughout: the tourist and the local. For each of these, we created a persona and will walk this persona through a particular use scenario within our app.

The Tourist

A tourist doesn’t know anything about the different neighborhoods or parts of New York City. They are interested in quickly finding the most popular tourist spots in New York City. They also want to find action-packed day trips since their time in the city is limited.

Persona

Mary is from California and has never been to New York City. She has a limited time in the city with her friends and wants to have good ideas to see the most historic and popular locations in the city. She also doesn't want to waste too much time traveling around the city, so she hopes to find collections of things that are relatively close to each other.

Use Scenario

Mary and her friends feel uncomfortable navigating the NYC and would prefer to see popular events around them instead of having to travel. She pulls out DayTrippr and clicks "Find a Trip" on the homepage. She sees a list of trips, each with several different places listed under it. Each one has a title, like "Bar Crawl in Chelsea" or "Historic Tour of Wall Street." She clicks on one that looks interesting. The places show up on the map, and she realizes that the trip is quite close to her hotel. She clicks on the trip for more info and sees more information about the trip including photos, contact information for different places, and links to websites. The trip looks interesting, but she wants to look around. She goes back, and searches for "museum" to see a list of all trips that include a museum. She sees one she likes, opens up the agenda, and reads about all the information about the trip as well as the travel route. She plans to go on the trip with her friends that afternoon.

The Local

A local has more experience in the city and is interested in helping visitors to make suggestions on itineraries.

Persona

Jim is in his 60s and lives with his wife in NYC. They both really love to explore NYC, and they have been living here for 20 years. Because of their experience, they wish to give back to the community and help visitors from across the world get a feel for how locals in NYC live.

Use Scenario

Jim wishes he had a site where he could upload his favorite places and plan travel routes. He opens DayTrippr and clicks "Submit a Trip." He uses the search bar on the left to find his favorite places: The High Line, The Whitney, The Standard. For each place, we clicks "Add to Trip" and sees it get added to his itinerary on the right side. He gives his trip a title: "A Stroll through Chelsea." He creates his trip, returns to the search page, and sees his own trip as the first result. He's excited that others will be able to enjoy NYC in the same way that he does.

Design Decisions

In designing our initial prototype, we thought very actively on picking up elements from our three previous homework assignments. This included reflecting upon Contextual Design elements

taken from H.Beyer and K. Holtzblatt in hoping to match user needs with the complexity of the underlying program, and thinking about Nielsen's 10 Heuristics to provide a highly usable program. Our goal was really to create a system from the vantage point of the customer and meet his or her needs. The needs of being able to quickly find a trip near you, or sharing your trip with others. We decided to have a homepage that is centered around this design, the final version of our homepage has both "Submit a Trip", and "Find a Trip", both of which are our two core services. For example, Mary, from our use scenario, can now look up different trip suggestions in New York City while Joe can also submit an itinerary of suggested activities. In addition, we aimed to create an elegant and simple layout again utilizing Google's design principles of simple thinking. Our overall design was also inspired by AirBnB since we appreciated it's simple interface and aimed to imitate similar characteristics.

Sketches and Design Thought Process

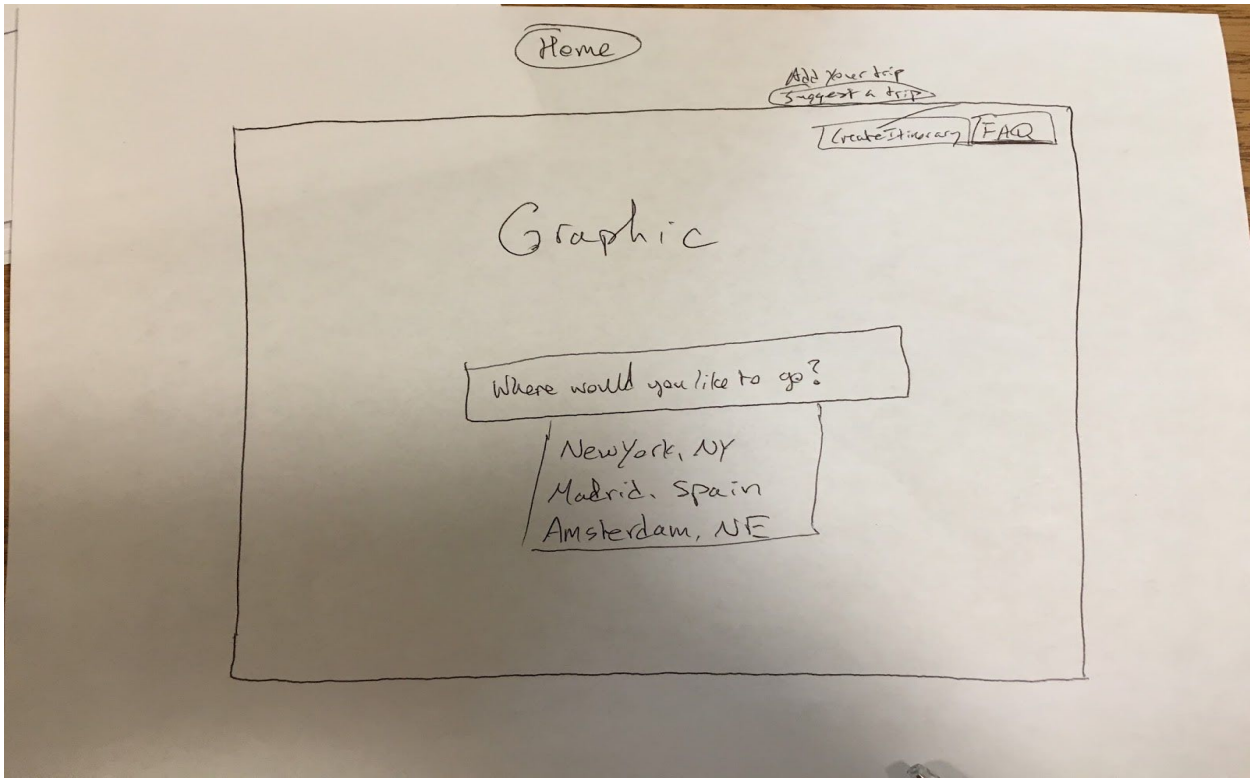
The first thing we did was sit down and think at a high level how we wanted the overall layout of the application to look like. We decided to sketch out different designs as it was the easiest and most efficient way to express each team member's idea and be creative. For example, we each drew a different version of our landing page with some including a search bar in the middle for itineraries while others simply had a link to Find a Trip or Submit a Trip function instead. Ultimately we settled on the pages below, but also refined it continuously throughout the design process and then finally onto using myBalsamiq creating a Hi-Fi prototype.

Below is a list of design concepts from start to finish incorporating our thought process.

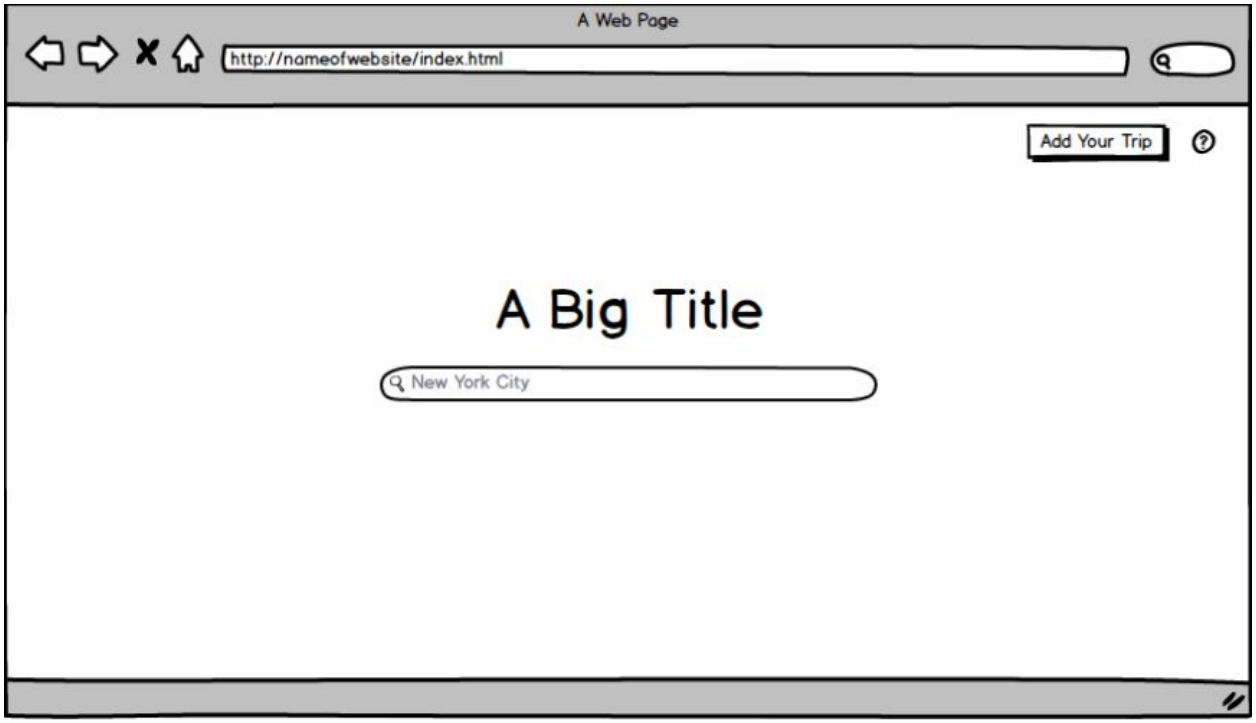
Home Page

Below is the original sketch. We imagined that a user would first search for a location, then go to a page on which they could see all the different trips that had been created for that location.

Plus, we'd have buttons in the top-right navigation bar with what actions a user could take.

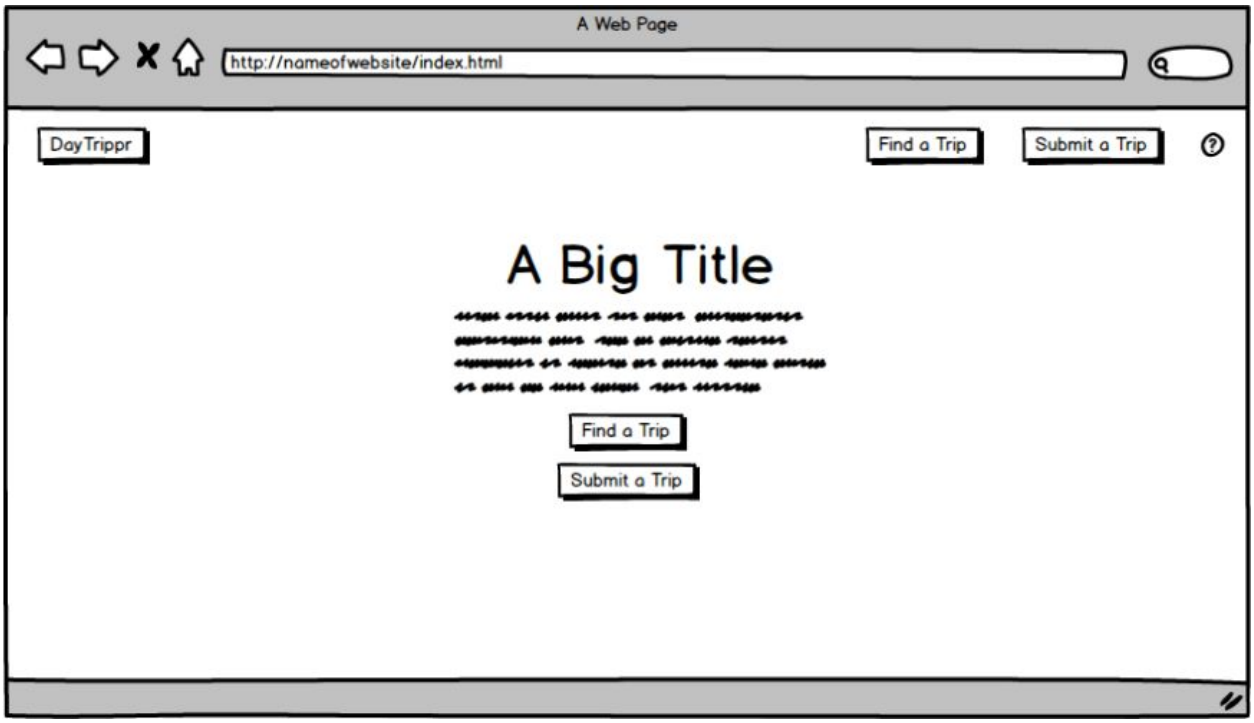


And below is our myBalsamiq prototype following the sketch:



After thinking more, though, we decided that we needed the user to understand what page they would be travelling to more easily. We hadn't yet introduced what a trip was, so the "Add Your

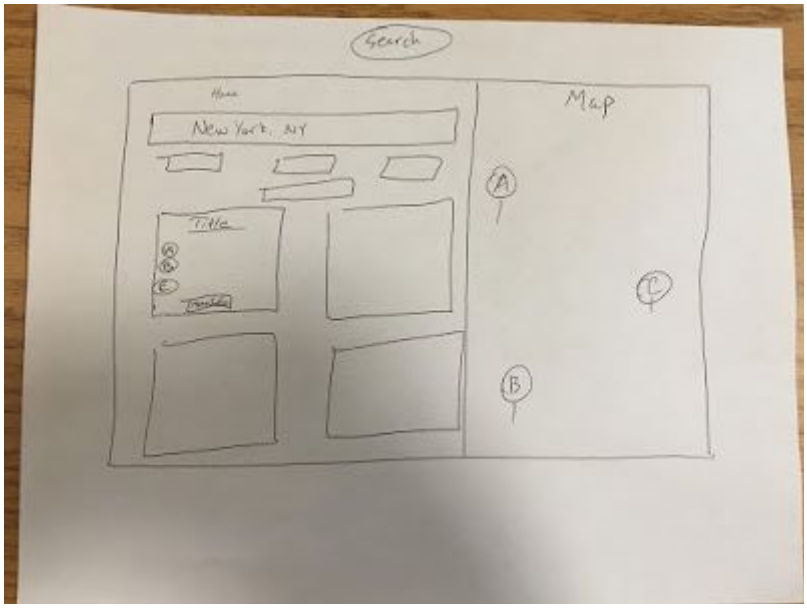
Trip” button felt like it would be confusing. We also felt it would be unwise to have a user search before they really knew what a trip was. Plus, we had to remove the location search because of the logistical concern over multiple locations. We’d need a lot more data if we wanted to search for any city in the world, so we decided against it.
In place of the search bar, thus, we decided to have two simple calls to action, “Submit a Trip” and “Find a Trip.” This makes it easy for first-time users to know what our website is for. In addition, some brief descriptive text about what the website is for makes the use case for new users very clear. So we adapted and updated the navigation and added a description of the website. Now the user can understand what the site is for, and a user who is revisiting can navigate quickly through the site.



From this iteration, we changed the design on the navigation bar because we felt that the 2 buttons at the top were redundant and a waste of space. This new look gave the home page a fresher and clean design while showing what the website is for more easily and directly.

Search Page

This was one of our first design. This was the page that we took that we took the most motivation from Airbnb. The map on the right side makes it easy to see where each of the trips is located, as well as to easily scroll through details of the trips without having the map disappear.

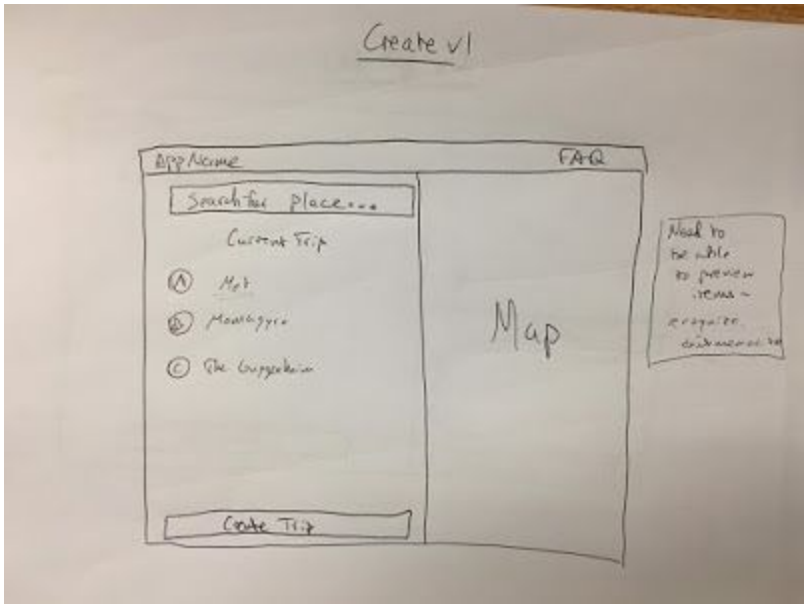


For our second iteration, we decided to eliminate filters. Filters were originally intended to say things like “Good for Kids” or “Great Nightlife” as well as filter by type (pick all trips that have a park, etc.) However, after looking into this more, we realized that it would be far too complex to implement and would ultimately serve to confuse users. Instead, we opted for a very simple user search bar, which would have an informative placeholder to instruct a user about how to search. This way, everything can be done through typing and the user doesn’t have to reason about what the different filters may mean.

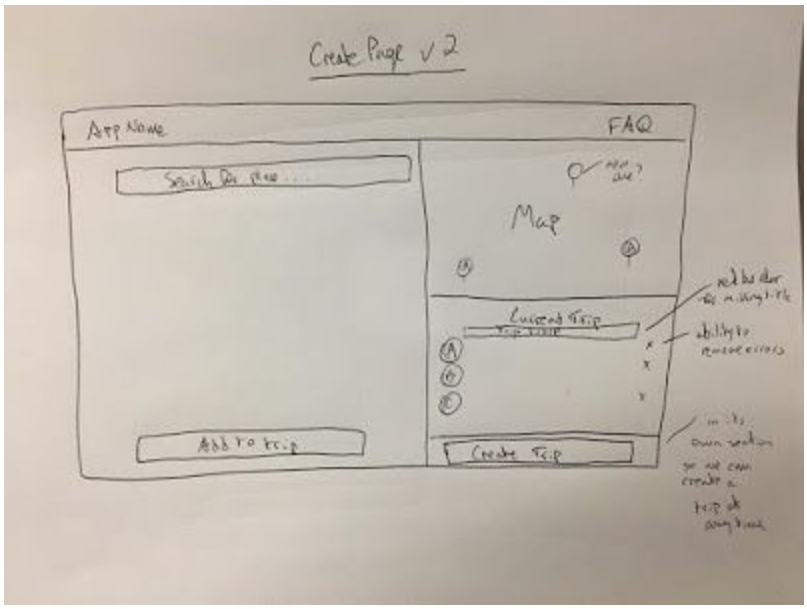
Our revised prototype below, thus, simply includes a search bar with no filters. This makes things simpler for the user and encourage the discoverability aspect of our product.

Create a Trip Page

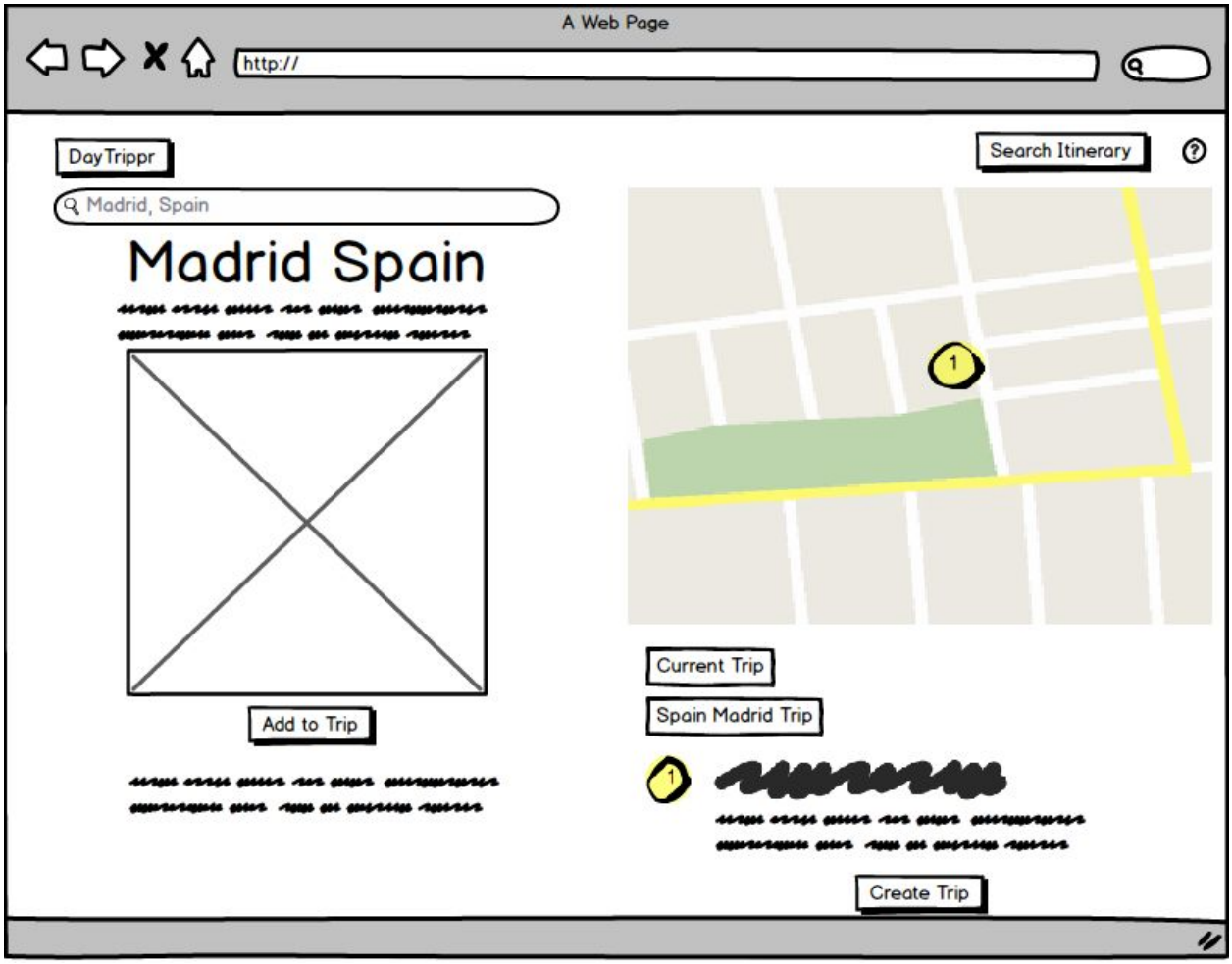
Our most basic version of the Create screen involved searching for a place in the Google Maps Autocomplete and adding it to the trip. A user would search for a place, click it, and add it to the trip. This was our first version:



However, after thinking more about what a user might need in order to use the website, we realized that it would be very nice to be able to preview a place before you add it. This favors recognition over recall: a person may not perfectly remember the name of a bar, so they want to make sure it's correct before adding it to the trip. This new screen, which you see below, uses the left side of the page to search for new places. At the bottom of each of these places, then, you can click "Add to Trip," which adds the trip to the itinerary on the Left. This provided a very nice way to be able to preview places before adding them. This second version is here:

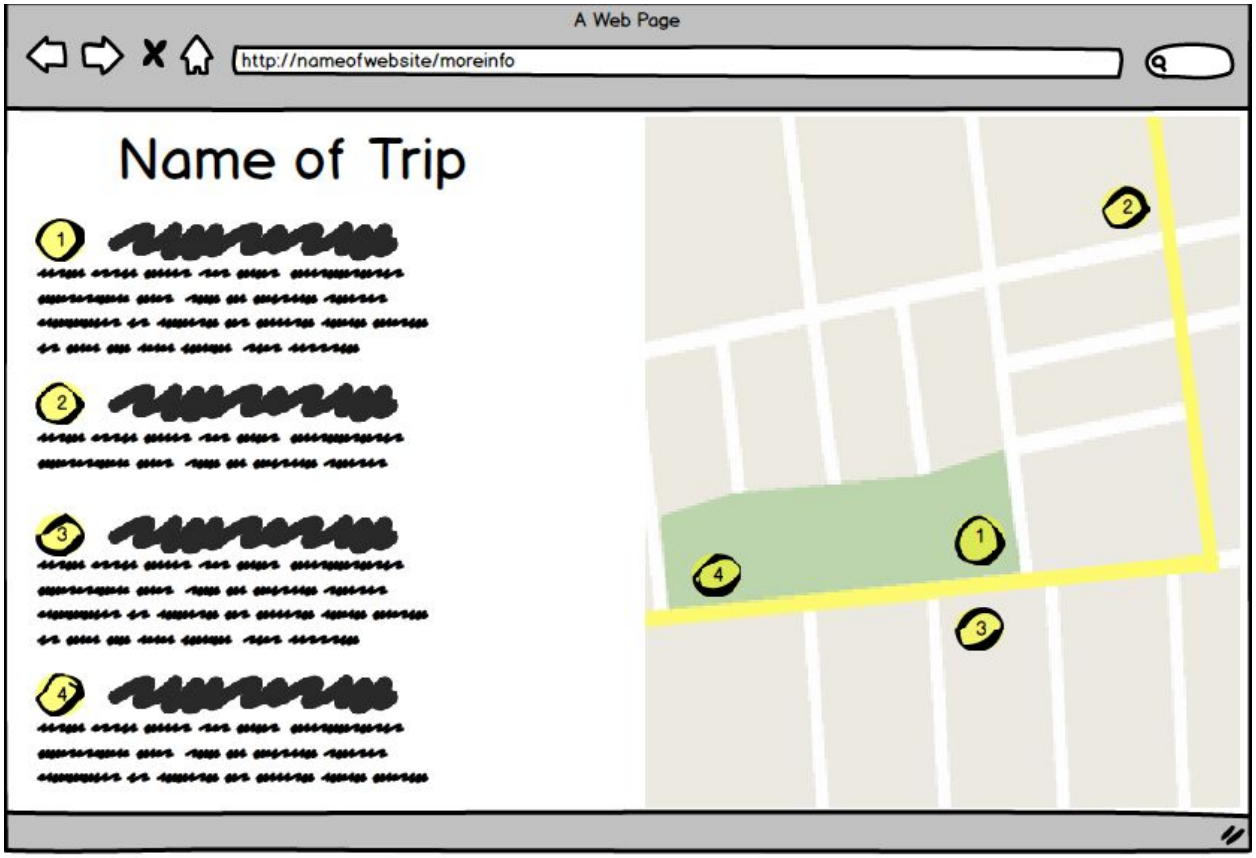


From here, we made our myBalsamiq sketch, which is seen below. It more-or-less is what we ended up using in the actual app.



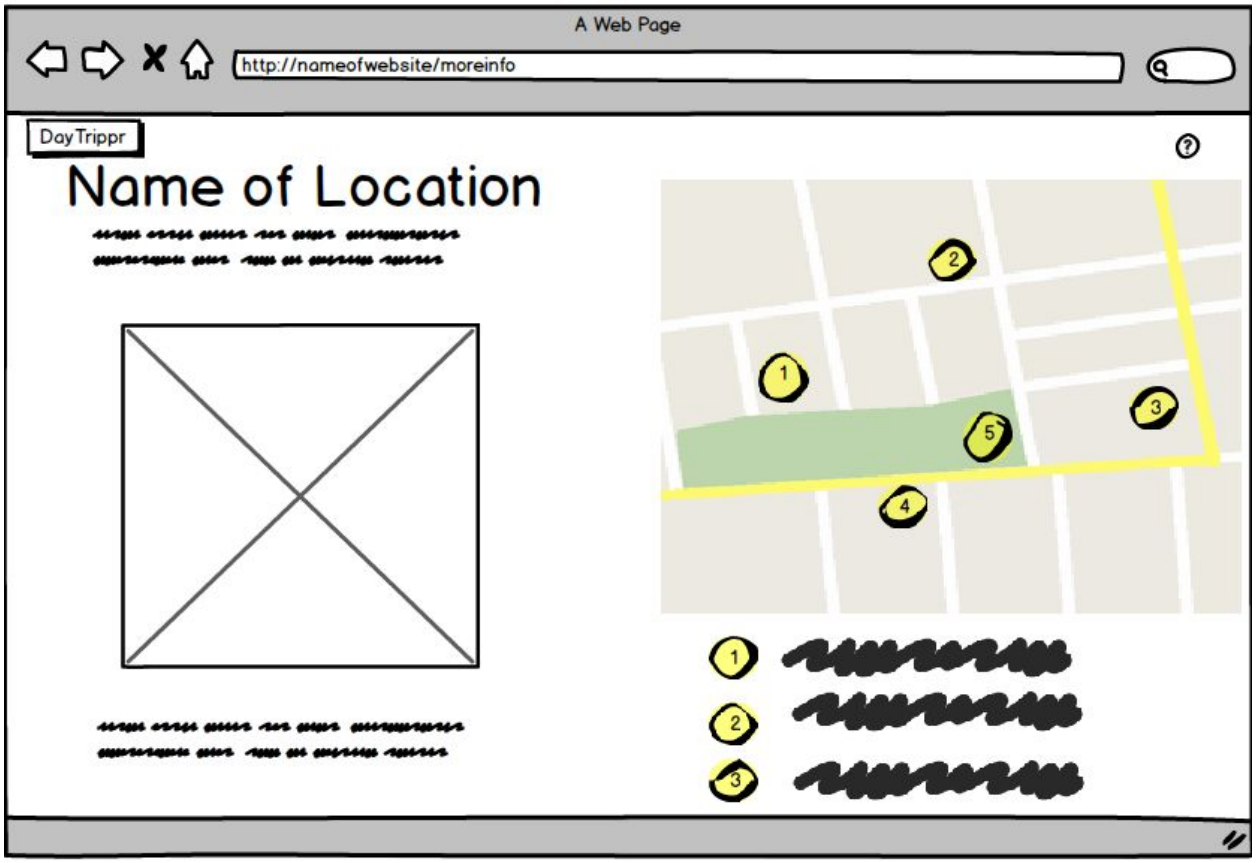
More Info Page

Our first More Info page would include a simple list of your itinerary that you could scroll through. This page is seen below:



However, after thinking more about what kinds of data we might like to see from a place (i.e. photos, phone number, etc.), we realized that a list would be too long and would require too much scrolling to actually see your data. So we implemented having the list of travel locations underneath the map, then the user is able to click on these listed item for further description. These descriptions included pictures, the website url, as well as contact information. This is shown below in the new version of more info page. The positive of this is that we had consistency across both our Create page and our More Info page. Thus, the experience of creating a trip after having seen several is very familiar to the user.

Our updated version below shows the information about a place is on the left side of the screen, just as it is on Create. The only different is that the search bar is missing.


A Web Page
http://nameofwebsite/moreinfo
DayTrippr
Name of Location
1
2
3
4
5
1
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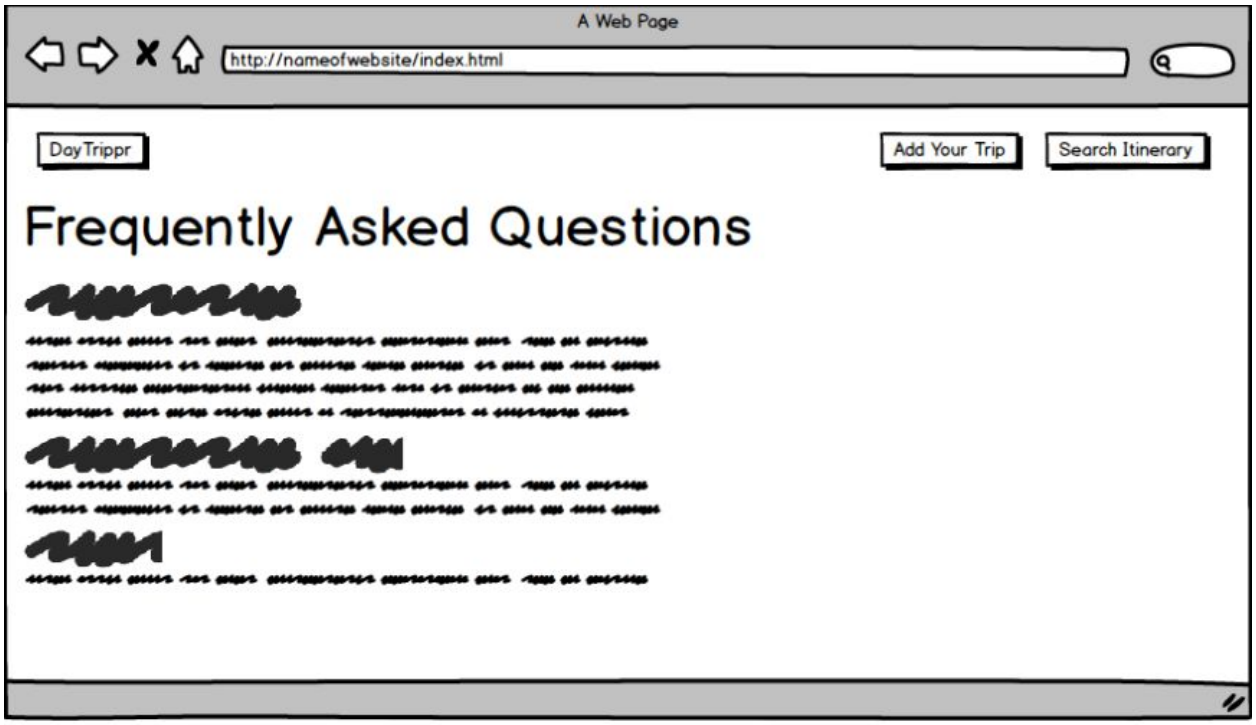
3

FAQ


A Web Page
http://nameofwebsite/index.html
DayTrippr
Add Your Trip
Search Itinerary
Frequently Asked Questions

The FAQ follows industry standards and we felt that the design adequately helps the user understand the website. This page can be reached from every page on the website.

Navigation Bar

Finally, we also included a standard navigation bar across each page. We wanted to do this so that the user has universal accessibility to each page with a single click, and at the same time keep this process consistent throughout the webpage.

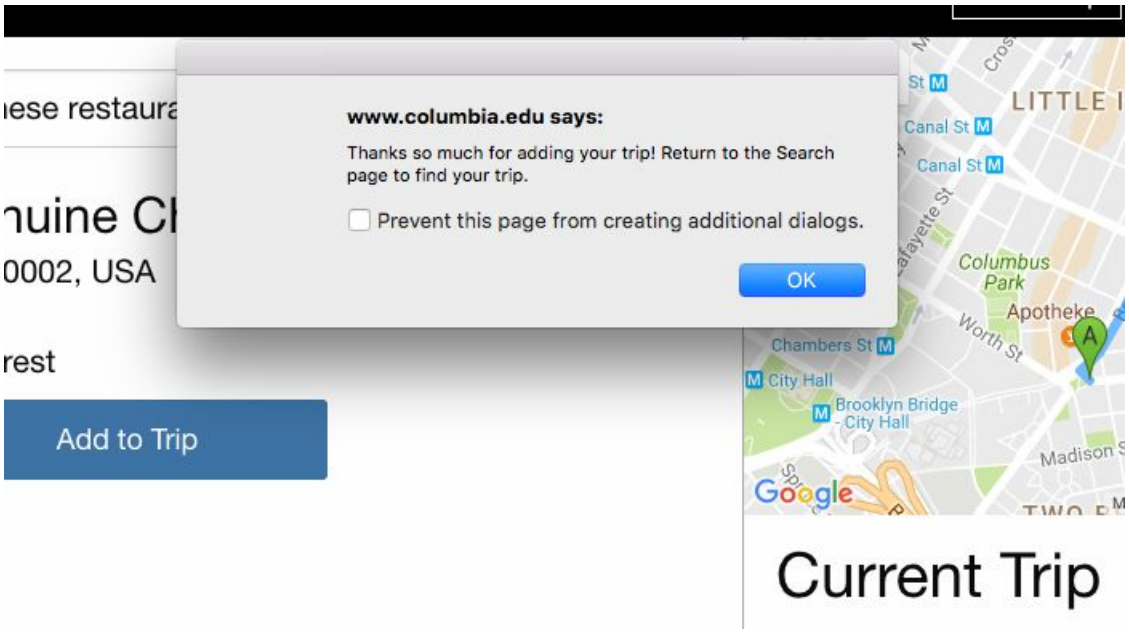
Overall, we went back and forth several times between each of the processes from sketches to Hi-Fi prototypes before finally deciding our final website design.

Overview of Nielsen's 10 Heuristics

We very closely designed our website incorporating Nielsen's 10 Heuristics, which we list below.

Visibility and System Status

At all times the user is aware of that the system is running and generally does not need an update on the system's status since the website does not run any large programs. However, we did include a pop up that alerts the user when he or she has successfully submitted an itinerary.

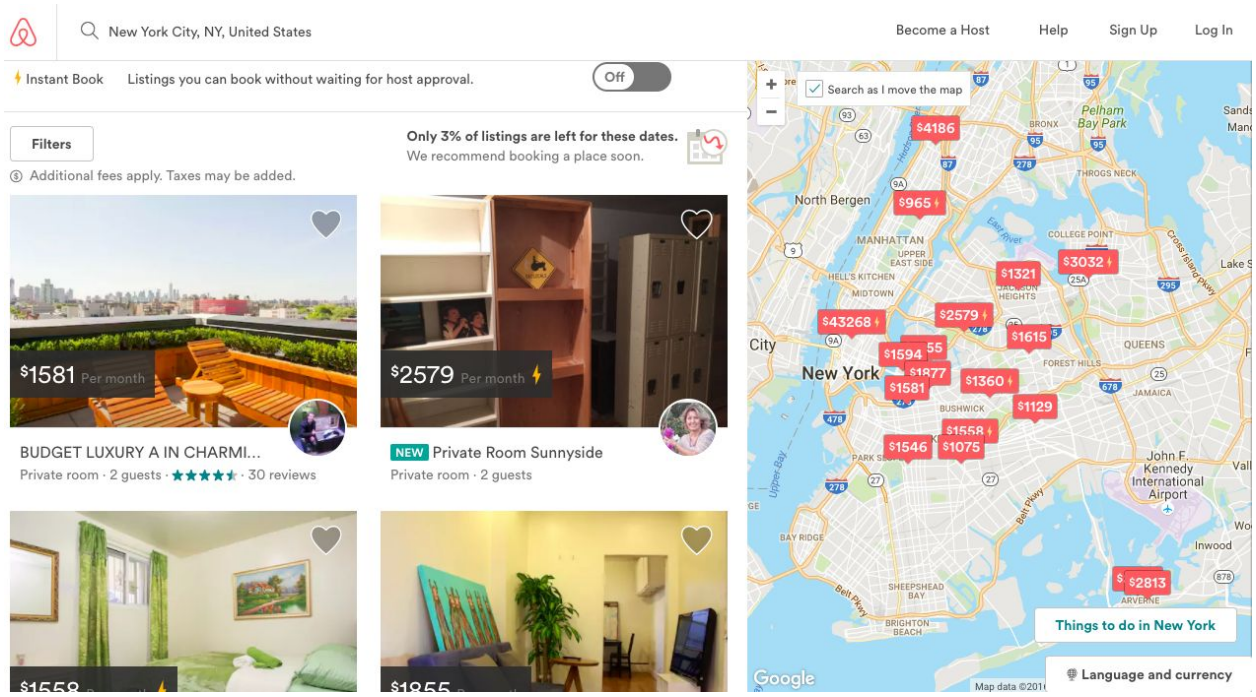


Pop up notifies successful creation of a trip's itinerary.

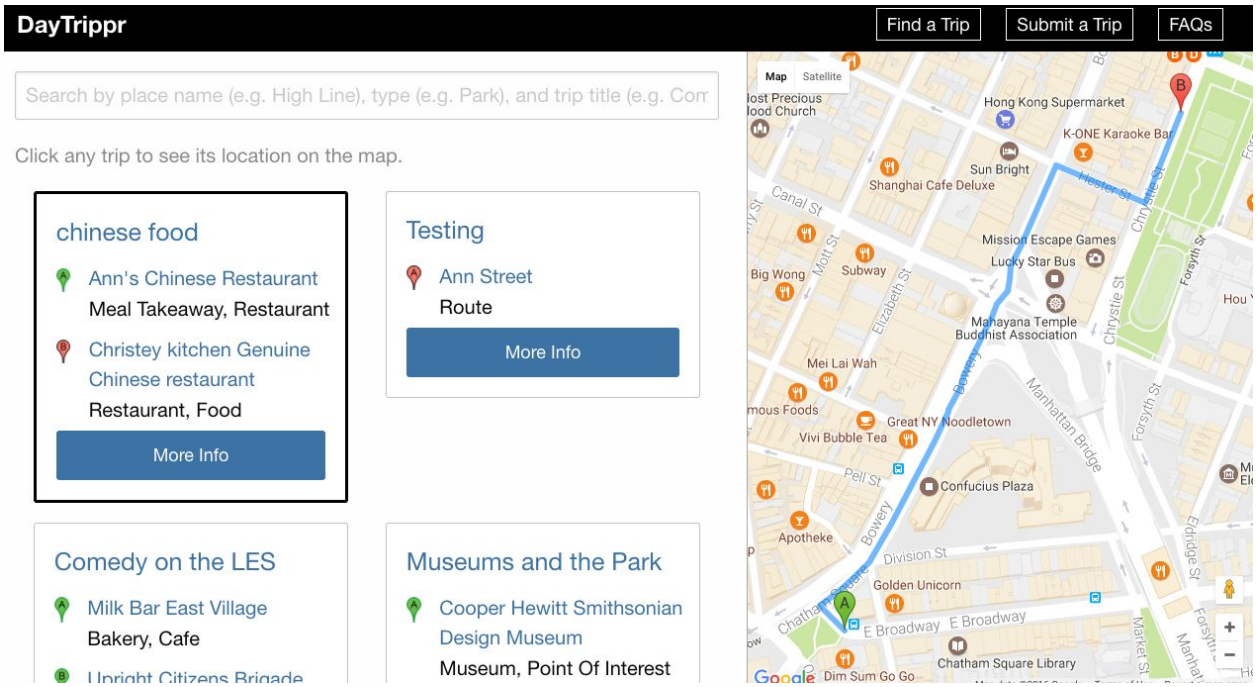
Match between system and the real world

When a user is viewing a specific trip the map displays directions which directly map to the list of locations they will visit. The list of locations are located directly under the map, giving the user in the

same field of vision the physical map as well as the list of items to visit. Also we modeled our site similar to Airbnb, in that on the search page you have the ability to click on trips and the map on the right displays additional information regarding travelling with the trip.



AirBnB's main page



Our Find a Trip Page

Please again note how we list events similarly to how AirBnb lists housing locations on the left and then a picture of the map on the right.

User control and freedom

User can navigate to any page they are predisposed to through the navigation bar at the top from any page on the site. This gives the user complete freedom to navigate throughout the site. Also, giving the user the ability to add to the sites trips puts the users in control allowing for a site driven by those who visit.

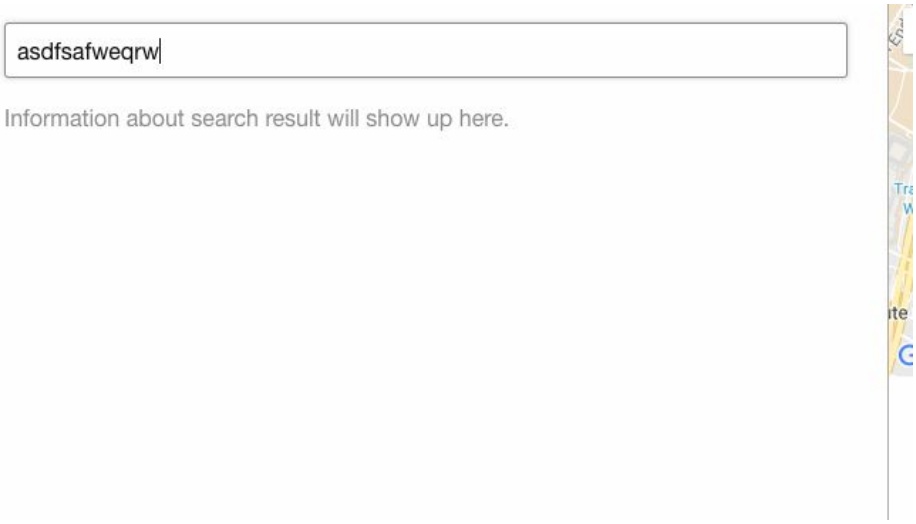
Navigation Bar

Consistency and standards

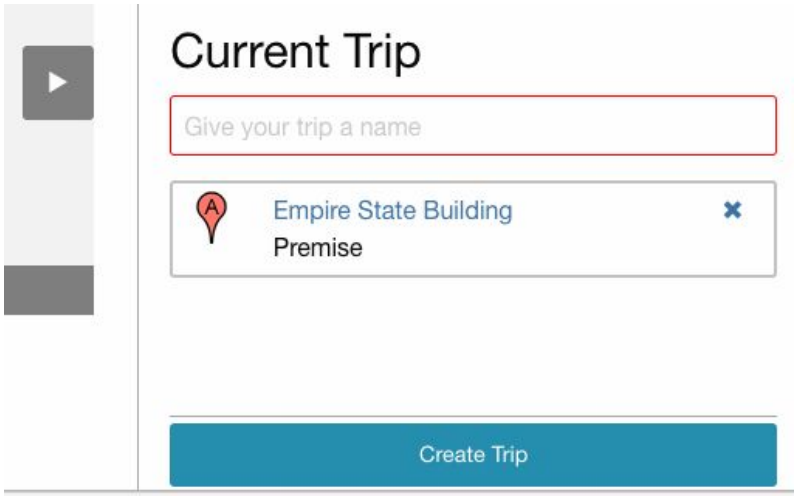
Every page has a similar layout and the navigation bar is always available throughout all the pages. We use common words such as “search” to indicate where the user can input a search request, and a FAQ button where users can go for help - pretty common phrases used across most websites. In addition, we decided to mirror AirBnB’s website design rather than Google Maps as it better matched our website’s functionality.

Error prevention

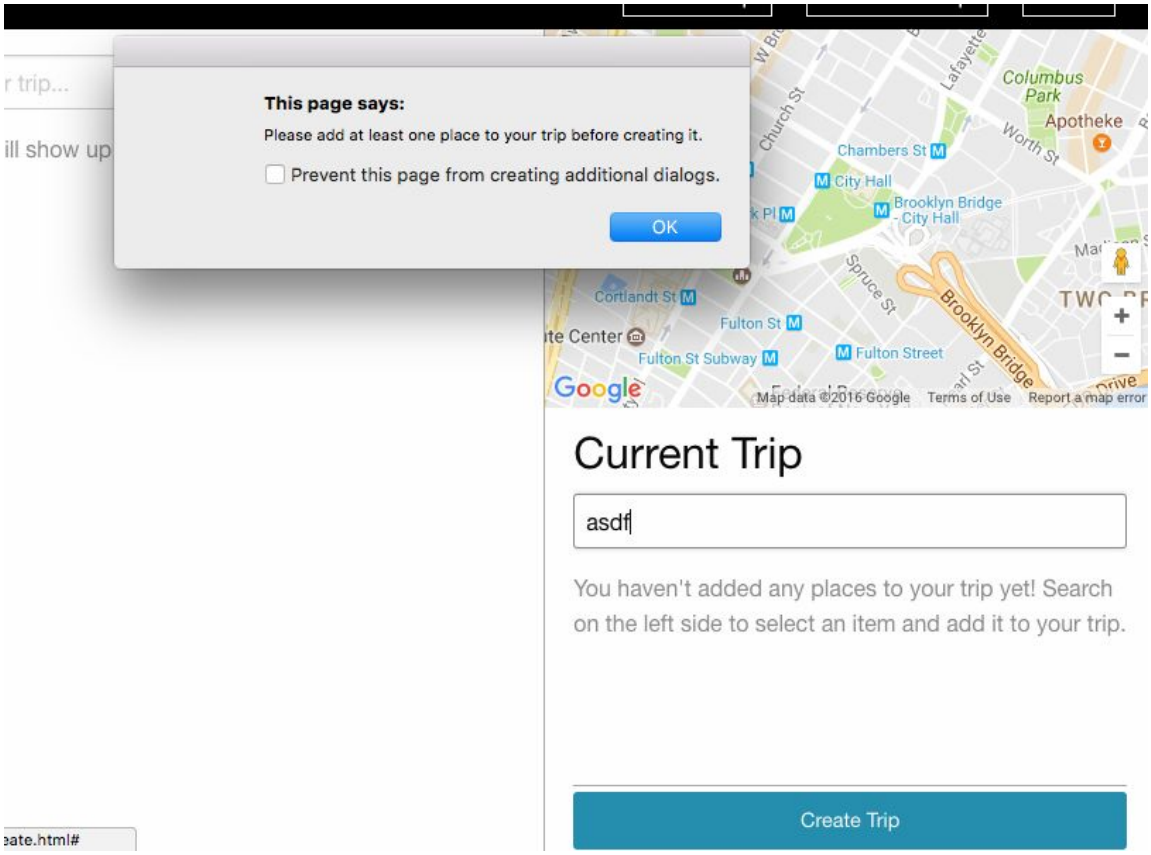
Auto complete search: Cannot add place no include in google search. You cannot click search or add if there is no result.



On the Create a Trip page, users cannot add a trip if the name is not entered or if locations are not added to a list.



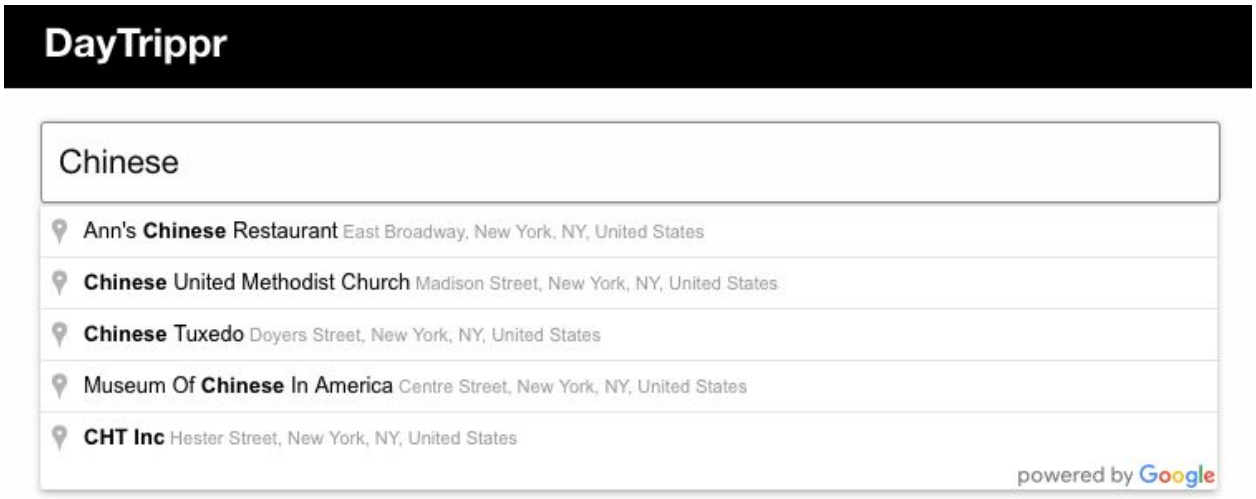
Notice how the system prevents a trip from being created without a submitted name.



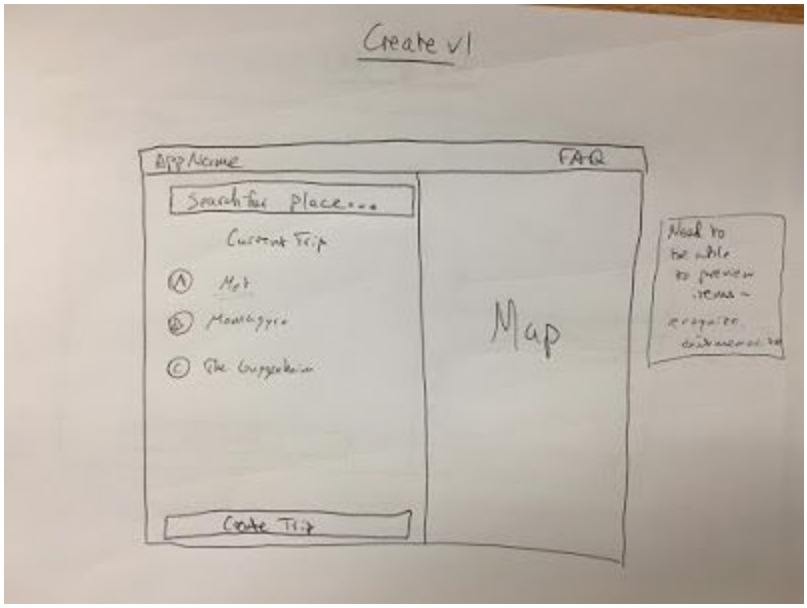
The system also prevents the creation of a trip without adding events.

Recognition rather than recall

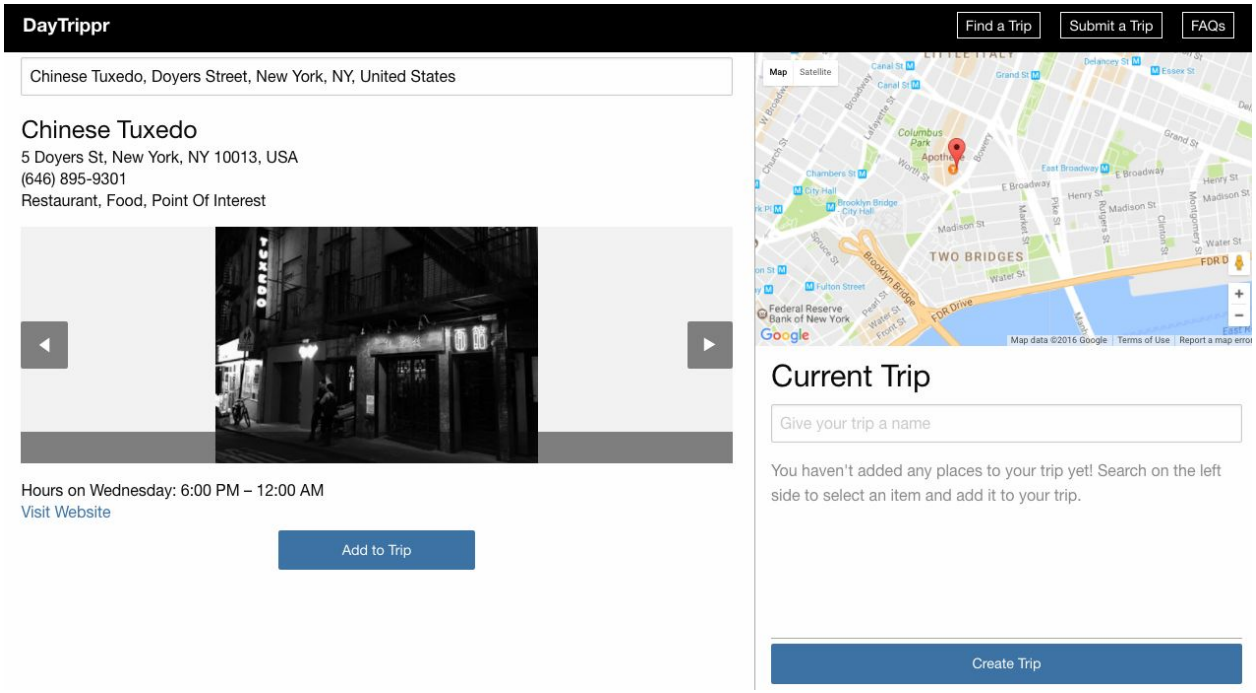
When filling out a search while creating an itinerary there is an autocomplete that occurs so that users can fill out the search. More easily even if they cannot recall where they want to go.



With our first version of the Submit a Trip page, the user would add items to a trip before viewing their descriptions and pictures of the locations. This would become problematic because the user would have to remember what the location was if they wanted to return. Now they can simply click on the destination if it is added, and you get to view the location being added before adding it to the trip. We implemented this change in order to minimize the user's need to memorize and recall.

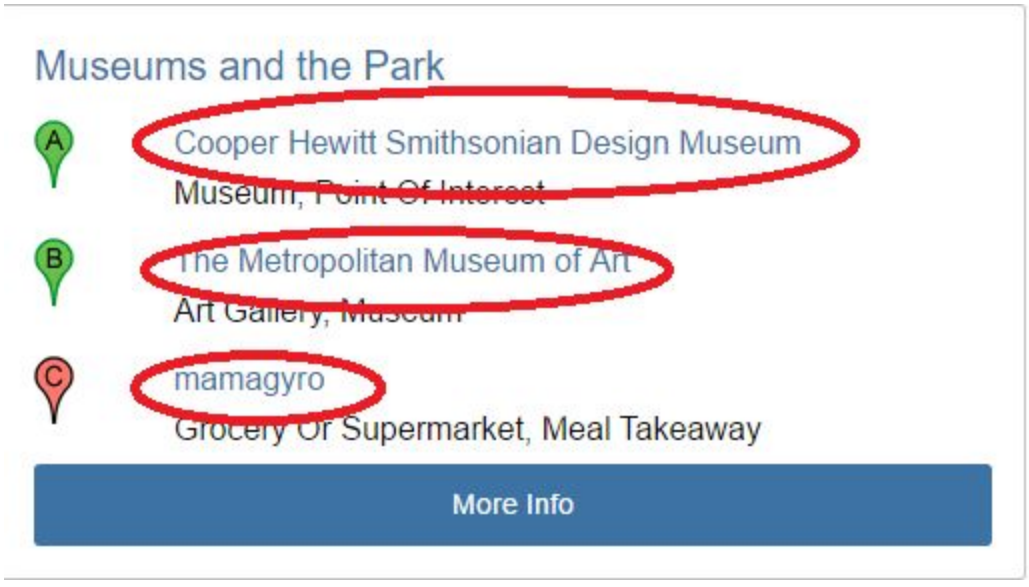


In the original sketch, the user could not view details of a location.



Now users can get some details of the place before adding to the trip.

<u>Flexibility and efficiency of use</u>
The list of locations in a trip contain urls that the user can go visit the site of the location for further information. No further research is necessary for the user.



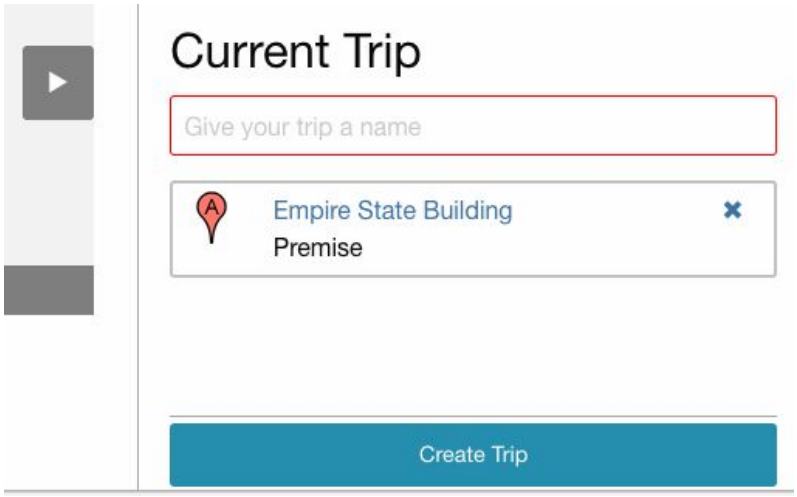
<u>Aesthetic and minimalist design</u>

Keeping in mind of Google's Design principles and imitating AirBnB's layout, we really strived to keep the site simple and beautiful. We repeatedly re-sketched the layout in the very beginning of the process to maximize each page's functionality and maintain simplicity across the website - in essence, we got rid of extra unneeded details or repeated elements.

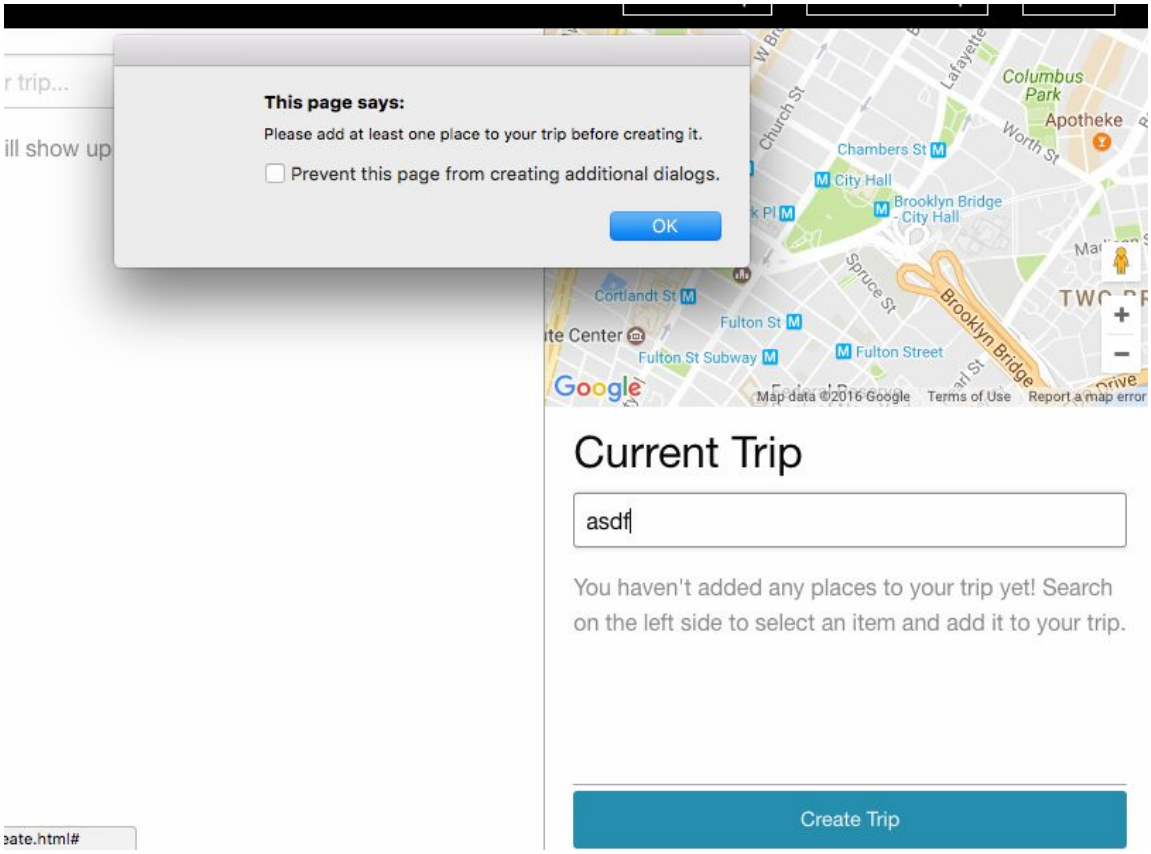
Help users recognize, diagnose, and recover from errors

If you try to create a trip that is empty it will give the user an error. Also, if the user tries to create a trip without a name the trip name input box will become highlighted to show that the user needs to fill out a name.

On the Create a Trip page, users cannot add a trip if the name is not entered or if locations are not added to a list.



Notice how the system prevents a trip from being created without a submitted name.

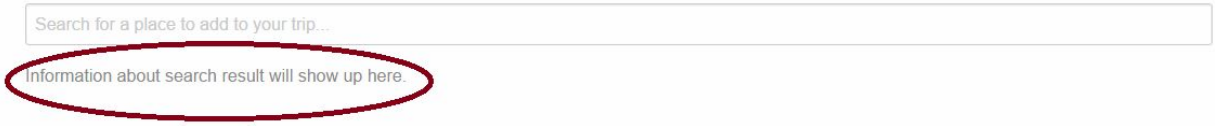


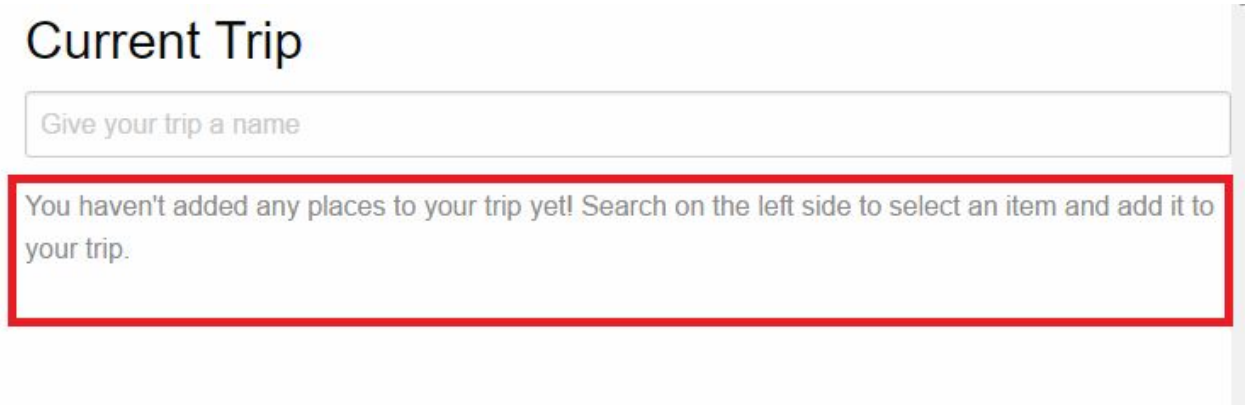
The system also prevents the creation of a trip without adding events.

Help and documentation

We created a frequently asked questions for our website that is located in the upper right hand corner at all times. This will answer any basic questions that a user may not understand when first using the website.

Also throughout the website there is helper text to aid the user in what they should be doing, some examples are below:





Further Design Considerations

Due to time restrictions and keeping a focus on the achieving the core goals of the project, we considered but did not implement the following features:

- Plan Trips Outside of NYC
    - Would have been outside of the scope of this project.
    - We also wanted to restrict this in our project, but Google's API made it difficult to put such limitations on in the application.
- Multiple User Registration
    - We believe having a multiple user system would have significantly enhanced the overall experience, but this was outside of the core focus of the project.
- Delete Listed Trip
    - We wanted to give users the options to delete their own trips, but this would have required a user registration system.
- Up-vote/Down-vote and Review Section
    - Would require a multiple user registration system again.
    - However, we would have liked to include some way of reviewing certain trips such as a comments section or even a rating system.
- Filters
    - Allow users to sort by certain criteria such as itineraries with only listed food venues.
- Book events
    - After incorporating a user system, it would have been convenient for users to have the optionality of booking an itineraries' events simply through DayTrippr rather than go to each of the events individually.

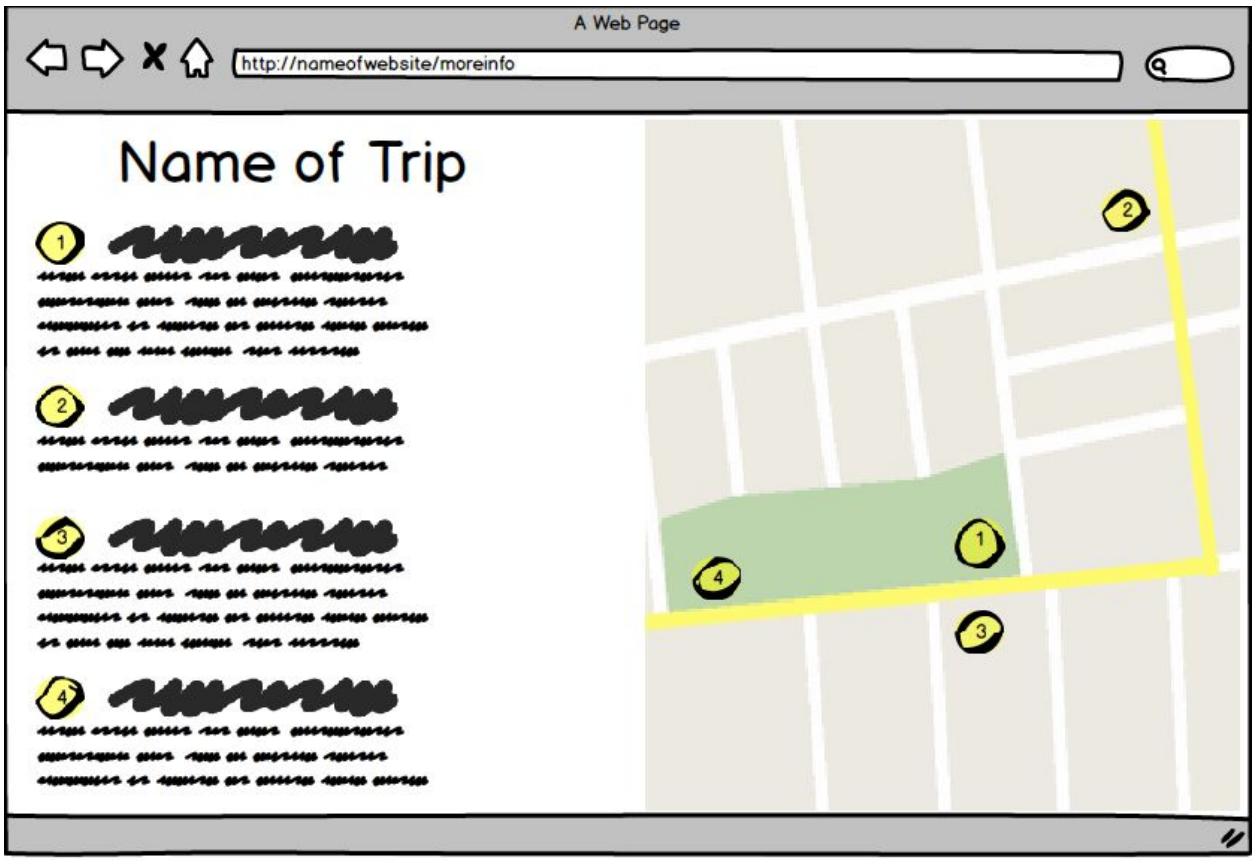
Prototyping and Testing

Before we did any prototyping, we first wanted to brainstorm freely by creating design sketches on paper. We did this first because sketching out the layouts allows for more creativity. Consequently, it is sort of like lo-fi prototyping without the added functionality of interacting with the user interface such as in paper prototyping. After finalizing our design sketches, we began

our second phase where we transferred our ideas from paper into a virtual prototype through the use of myBalsalmiq. Additional changes were made between the paper design sketches and our virtual prototypes on myBalsalmiq. We also went with myBalsamiq because it was easier for the group to share, and because it was very simple to illustrate the transitions between pages as well as show the site's overall functionality.

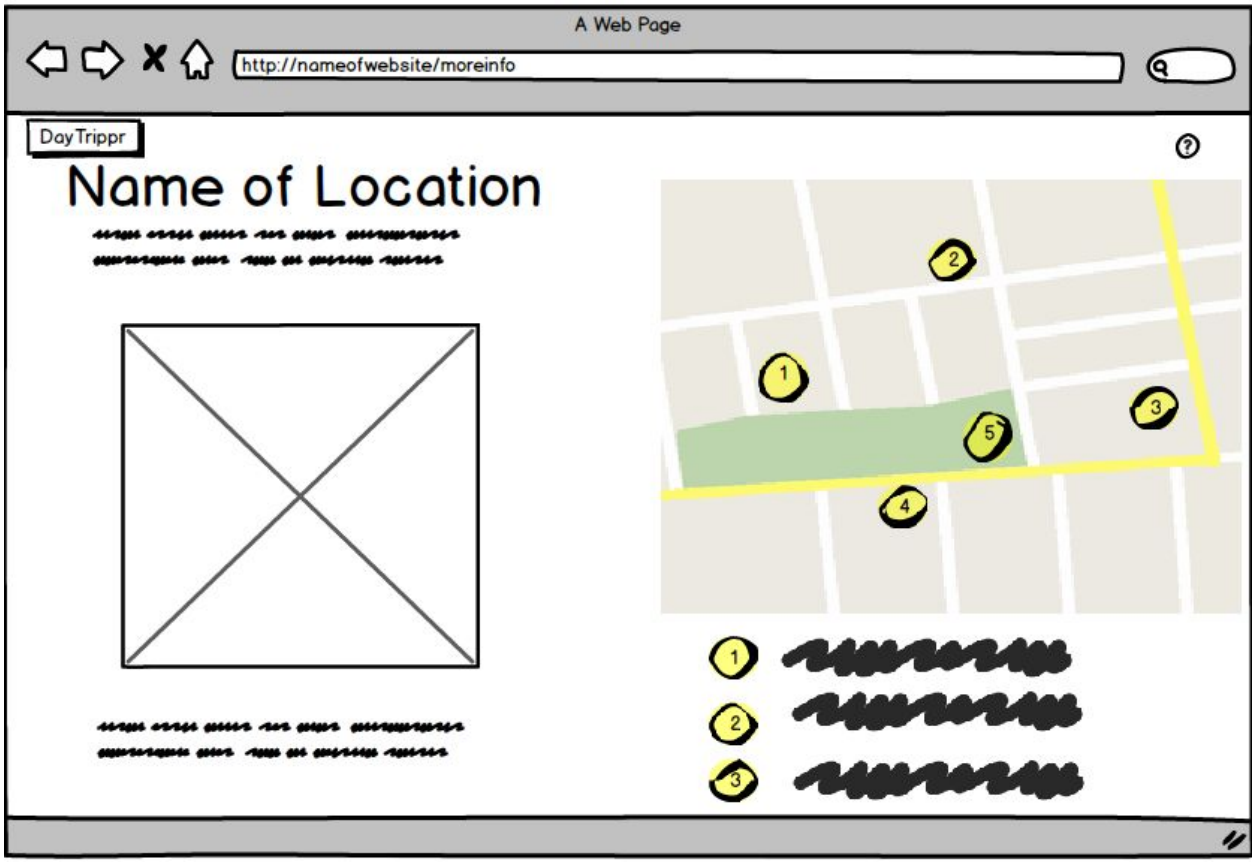
In addition, we tested our prototype with the user scenarios we originally created. Each of our members acted as the role of the persona, and attempted the best they could to see through their lens. With this mindset, we made the current adjustments accordingly and below are some of the changes between the old and new "more-info" page.

After this first iteration of prototyping here is the old version of more info page:



https://columbiauniversity.mybalsamiq.com/projects/4170-2016-droptableteams/more%20info1

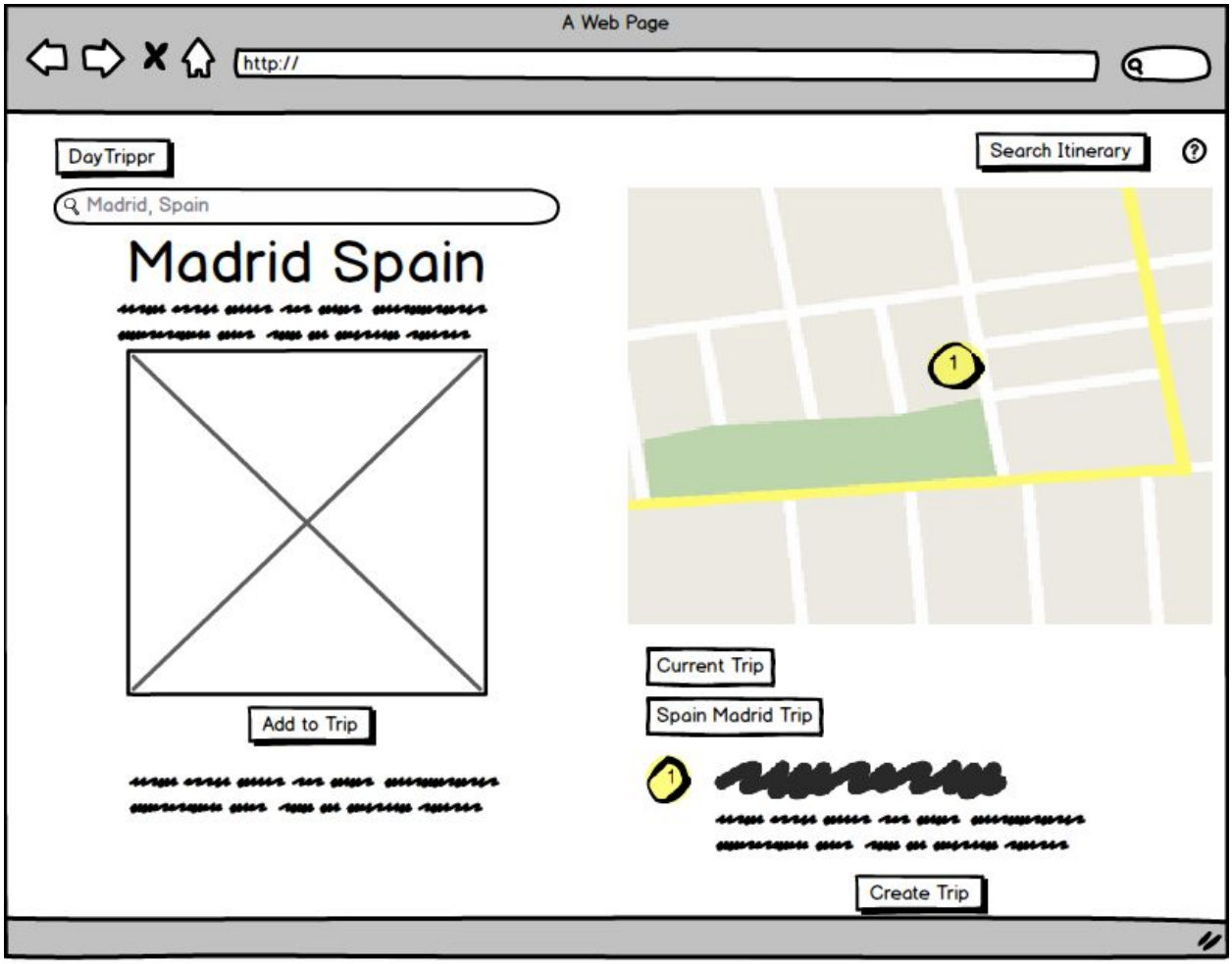
New version:



https://columbiauniversity.mybalsamiq.com/projects/4170-2016-droptableteams/more%20info

We were inspired by the Nielson's heuristics, and decided to take a different approach than the design sketches with pages "Create Itinerary" and "More Info" to create a consistent interface between web-pages. Having the trip destinations in the bottom right corner underneath the map allows the user to be able to look at a list of directions and easily differentiate where the trip takes them. By clicking on these destinations they can view the destinations themselves on the left. This keeps the webpage organized with logistical information on the right, and details of the events on the left. Both adding a trip (create itinerary), and viewing a trip (more-info) follow this same process. As you can see below Create Itinerary is similar to the current "more-info" page to maintain the heuristic of simplicity, and consistency.

Create Itinerary:



https://columbiauniversity.mybalsamiq.com/projects/4170-2016-droptableteams/create%20itinerary%20filled

In essence our final design was influenced by testing the original sketch designs, followed by testing through myBalsalmiq our hi-fi prototype, then testing our interface amongst our own group. This would often cause us to go between sketching a design then returning to myBalsalmiq to gain a better understanding of how the user would feel using the interface. Decisions on color schemes, and other low level design decisions, were made when creating the actual project.

In order to test each use scenario, one of our team member act as user and try to do the thing list in the use case. The others are recording and inspect the test. Then we changed roles.
In our final tests, we tested the completed version of the application. We all individually used index cards for recording issues of usability that we faced. Things we changed as a result of this last level of testing included:

1. Shrinking the tap target on place name links.
2. Adding helper text for if a user doesn't have any search results.

3. Removing “Find a Trip” and “Submit a Trip” from the navigation bar for the home page.
4. Make the spinner on the image orbit more visible.
5. Removing bold on home page description below title.

Software Engineering

To build our application, we used a combination of HTML, CSS, and JavaScript. For CSS, we used a CSS library similar to Bootstrap called Foundation. Foundation provides many pre-designed UI components, including buttons, a grid system, and forms. Foundation also provides pre-made components that used JavaScript to make them interactive. For example, we used an orbit component, which allows you to scroll through different photos from the location. We also wrote much of our own CSS to customize the components that we would be using.

For JavaScript, we used the jQuery library, which makes UI elements easier to select and manipulate. We also used the Google Maps JavaScript SDK, which allowed us to instantiate new maps and to query for location data. In addition, we used the Google Directions API to plot walking directions between the different locations in our trip. In addition, we used store.js to store local session data for when users would add new trips. For the basic data, we included a file called mock-data.js which had four sample objects. We imported these in our search page so we would have search results for the demo.

For an IDE, we used Sublime Text. We used git and GitHub to collaborate.