

Spot On App Design

INFSCI 0410: Human-Centered Computing

Robert Perkoski

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Group Leader: Michelle Prem (mrp105@pitt.edu)

Elliot Blasko (emb210@pitt.edu)

Prateek Jukalkar (psj4@pitt.edu)

Angela Tseng (aat52@pitt.edu)

Tyler Olin (tco8@pitt.edu)

Victoria Bloomfield (vlb42@pitt.edu)

Adnaan Hasan (ash124@pitt.edu)

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Introduction

Our project is a travel companion application intended for people to utilize while on vacations. When people take vacations, they are typically hoping to take a break from the stressors of work and other personal responsibilities. Oftentimes people will find themselves stressing about trying to make the most out of their vacation and finding the perfect activities to do while away. Spot On aims to make attraction options readily available and easy to choose from by learning travelers' preferences to suggest what they are most likely to enjoy, reducing their cognitive burden and enabling them to achieve the often lost goal of a vacation: relaxation.

Problem Space

To start exploring the problem space, we first met as a group over Zoom and brainstormed in an open-forum like setting to identify some forces acting upon vacations that impact their "success" in terms of how relaxing they are. Some factors we came up with through this initial period include the location being visited, any budget constraints that must be adhered to, the attractions visited at the chosen location, the type of trip (solo or group), the demographic of the traveling party (i.e. with friends vs. family, the ages of the travelers), individual lifestyle preferences of the traveler(s), physical limitations of the traveler (cannot perform activities involving strenuous exercise) and the emergence of the COVID-19 pandemic and its impact on both business and leisure travel.

To go beyond this initial brainstorming session, we used a framework to analyze the problem space further and examined Travel Buddy, an existing competitor mobile travel app. Travel Buddy is centered around the idea of matching with a local guide in the destination you are visiting. This guide will help you plan your trip since they have a deep familiarity with the area. It also has a more social tilt, allowing users to connect with other people traveling to the location to share knowledge and create relationships at the user's discretion. We found their approach to be selective within the problem space, as they made assumptions about the traveling party (solo) and the type of traveler (someone who likes a lot of guidance when visiting a new location). While we had yet to perform some form of data gathering at this point, examining Travel Buddy sparked the realization that we may also have to narrow our scope because it would be very difficult to appease every combination of traveler and situation. We also found the app's heavy focus on connecting with the destination on a more intimate level interesting and added it as a factor within the problem space we had not previously considered since community engagement is important to many people. After examining the problem space, we moved to the gathering data; for details on this part of the interaction design process, please reference the PowerPoint linked here:

https://docs.google.com/presentation/d/1k0bxXCNAO_zmy5xGgVypeiKVoWdAGWAu1gUObGmcyEU/edit?usp=sharing.

Based on our analysis of the problem space and Travel Buddy as well as data gathered from exploratory interviews with group members, we determined that it is not feasible to touch on all areas of the problem space. For instance, the COVID-19 pandemic hangs over the very idea of travel itself, but since a return to normalcy appears to be coming sooner rather than later, we did not find it necessary to factor this into our requirements/design. Accordingly, we also realized it is unreasonable to design a product that appeals to all types of travelers, so we split users into two broadly defined categories: those who like to plan every aspect of their vacation and create a detailed itinerary to be followed on the trip, and those who are more spontaneous and prefer to “go with the flow” rather than planning in advance. We are specifically targeting the latter group to narrow the scope of the problem so a targeted, effective solution can be devised rather than a cluttered one with a laundry list of features and a lack of focus. This decision was made in part by the tendencies/personalities of our group members since we were acting as the users and had more information about this type of traveler. Another assumption made was that the vacation destination has already been chosen at the time someone would use our app since we felt as though picking a destination and planning the trip are two different areas. With some data collected and a deep understanding of the problem space, we formally developed our requirements across a few categories and created a use case and two personas to bring them to life based on our target audience. The listed requirements, use case, and personas are viewable in the presentation linked above starting from the fourth slide.

From the requirements, the purpose of our app becomes clear: allow more “Type B” travelers to embrace spontaneity and all of the joys that come with visiting a new location and exploring freely. Spot On is beneficial and facilitates this process because it provides them with some support in making decisions and finding things they want to do rather than wandering aimlessly and wasting time. Our app does this without being overly prescriptive, so a balance is struck between catering to travelers’ personalities while also significantly reducing their cognitive burden. Unlike other travel apps such as Travel Buddy and even Google Maps, Spot On builds a history with its users, so the more trips they go on, the better quality service the app provides, creating a loyalty to our product compared to it acting as a temporary tool that would not be used again afterward.

Prior to settling on Spot On and the travel experience space, we also considered two other issues to develop a product around: the COVID-19 pandemic and the lack of organization and confusion surrounding Pitt events. Regarding the pandemic, there were an incredible number of forces acting upon it. Some of these include age, underlying health conditions, preexisting vaccine hesitancy, political leanings, cultural differences (Eastern cultures tend to value the collective while Western nations value independence). Since we were asked to examine problems we could relate to as college students, that made it easy to within this space, and we considered creating a type of contact tracing app on campus for all students to use. This would track all positive cases and alert everyone else using the app when they had previously been exposed to someone who tested positive for the virus. For the Pitt event tracker, we all seemed to share the collective experience of never knowing all of the events that were occurring on

campus, which is the underlying problem that sparked the idea. Some factors affecting this problem space include the different types of students who may only care about certain types of events, access to smartphones, and user behavior (do people like receiving a constant stream of notifications about what is occurring on campus). We thought of these ideas along with the travel app during the first class period we started working on the final project and decided to develop more fleshed out descriptions of what we could design by researching existing solutions and the scope of the problem itself before the next class. After reconvening the following class, we quickly moved away from the contact tracer because someone found that an app had just been released by the state that did almost exactly what we planned to do. At that point, it did not feel like making a campus-specific app would be that much more useful than utilizing the official state version. Additionally, a contact tracing app has a very simple and clear purpose which is to slow the spread of infection by alerting anyone associated with/near a positive test to quarantine to avoid a chain reaction of infections. Because of this, we struggled to even brainstorm features that we could add beyond the GPS functionality and sending notifications to affected individuals, so we ruled this idea out. For the campus event tracker, it had one of the same issues as the contact tracer in the sense that the scope of the app was very limited since it was only for students at one school. The group also unanimously agreed that the scope of this potential project was heavily limited compared to the travel companion app because most of its value came from aggregating information from a large range of data sources. The travel app we ended up choosing, however, had seemingly endless possibilities in terms of types of users and the scope of the problem, since almost everyone of all ages has been on vacation(s) and likely has pain points they wish could be resolved.

Team Dynamics

Roles were assigned in the first week of meeting everyone on the team, but each member was able to contribute in ways that overlapped with other roles. Prateek was assigned as a researcher to find relevant information about our problem space and any real-world occurrences we could incorporate into our thinking. Adnaan was the PowerPoint person and was focused on how all of our information was organized and being presented. Michelle and Victoria were the leaders/managers since we had a large group, so they kept everyone organized and on track to complete the project on time. Elliot was assigned as the scribe or writer and took notes during meetings to reference later. When Angela joined the group, she also joined in as a writer with Elliot. For the final product, Adnaan was responsible for the evaluation, Victoria was assigned the conclusion and helping whomever else needed it, Michelle did the product/features section, Angela the team dynamics section as well as helping with other sections, and Prateek did the introduction/problem space section. Elliot and Tyler created the low and high fidelity prototypes, and as we made changes, they modified them and showed changes made each week to the rest of the team to start the iteration/feedback loop. However, despite these roles, everyone on the team contributed to brainstorming ideas, researching and completing labs.

The team relied heavily on Google products. Labs were completed collaboratively on Google Docs, downloaded, and submitted individually when completed. We used GroupMe and created a chat for the project where we would ask for feedback, general questions, and scheduling meetings over Zoom. Responses were always quick and friendly.

Originally, if the group encountered any conflicts, the approach was to collectively meet with all the group members. At the meeting, members would explain their varying viewpoints, provide some rationale, and a majority vote would be taken to determine next steps. However, this was never needed. Members met peacefully at necessary times, discussed ideas openly, and were able to come to a consensus naturally on all issues without having to formally take a vote. Each person offered their own skills, be it in written, verbal, or technical form, and this created an open environment for collaboration that enabled everyone to gel and develop team chemistry.

Product

The most important feature of Spot On is the recommendation engine that provides suggestions of attractions to visit. It works through machine learning algorithms that “learn” what the traveler’s preferences are based initially on the quiz they complete at the start of each trip that glean his/her personality and logistical factors (who he/she is traveling with, duration of the trip, the destination, etc.), which is described below in more detail. As the user interacts with more suggestions (either accepting or rejecting them), the ML can tune future suggestions so they more closely match what he/she wants. These suggestions are delivered in two ways; the first is through push notifications. Spot On asks for access to your location, so when it detects that the user is in a specific location that has an attraction it thinks he/she will like, it sends a push notification. This represents how the app employs the “responding” interaction type since it takes the initiative to inform the user of something it considers relevant. There is also a “What Should I Do?” button in the app that, when clicked, gives a list of up to ten suggestions sequentially until the user accepts one. With some inspiration taken from Tinder, the user can swipe left to reject and swipe right to accept the suggestion. There is also an emphasis on attraction suggestions that are locally-oriented since that can provide an experience unique to the destination. If the user tends to accept these suggestions, they will become more prevalent, and if they often reject them, they will appear less often. This represents the “manipulating” interaction type since the user is physically dragging a virtual card object in such a way that left is akin to throwing something away and right is grabbing it.

The second most important feature in the app was the traveler type quiz. This quiz is taken when the user first downloads the app and creates an account to establish a baseline and once before every subsequent trip if they choose to retake it (otherwise previous results are used). The quiz asks personal preference multiple choice questions about what the traveler likes to do (i.e. “Do you seek out adventure or like to relax in town?”) as well as specific questions about the trip he/she is about to take (i.e. “How long is your trip?”). After completing the quiz, software algorithms identify what type of traveler the quiz taker is (i.e. “Foodie”). This part is critical because it serves as the linchpin of the recommendation engine; the initial suggestions provided come from the traveler type quiz, and the type of traveler someone is heavily influences all suggestions in the future.

The third most important feature is the profile screen. This is critical because all of the work that the ML algorithms do in the background is otherwise only visible through the suggestions. Having a profile screen in the settings menu gives the user a way to visually see their traveler type and personal details. This is also where they are allowed to manually update information if they so choose. This also provides a “failsafe” of sorts in case the machine learning algorithm is not performing well and poor suggestions are being provided.

Next is the interactive map that updates in real-time to represent attractions, restaurants, and sightseeing opportunities. We took inspiration for this feature from Google, which has a Maps app that uses the card metaphor when something is clicked on to display information in a

structured, easily divided manner. This will help users more easily visualize where they are within the destination and their distance relative to attractions. These attractions can be filtered based on the quiz results, so the only places that appear are ones the app believes they will enjoy. We do not have this very high on the priority list because it takes more effort from the user to find what they are looking for by sifting through the map, and the app generally facilitates making quick decisions. This is also an example of the “exploring” interaction type since users can visually see the destination represented, move over its entirety by scrolling, and zoom in/out to see physical buildings and places.

Fifth is an information page about the destination the user is traveling to. This is especially important when visiting a foreign country. For instance, consider someone getting sick and needing medical attention; with no knowledge of the hospital/healthcare system in a foreign country, the risk of a catastrophic or worse than expected medical outcome is increased. This page will provide resources such as the nearest hospital/first aid clinic where they can get help. It also shows the nearest currency exchange booth and tips on the local etiquette since these things are usually taken for granted in familiar settings that may be overlooked initially while going on a trip. This is not high on the list because there were only a few members who expressed interest in having this since it is technically possible to use Google to retrieve the same information. For the same reason, the currency/etiquette data is also not likely what would make or break a trip, but it could increase convenience.

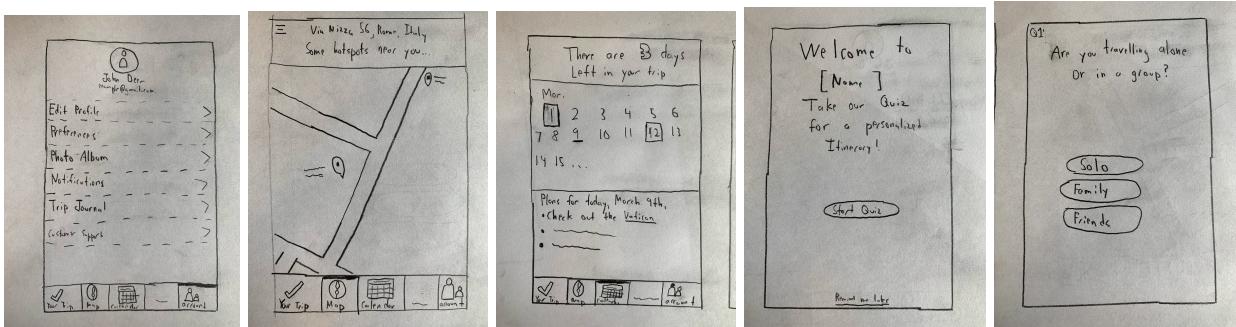
Sixth is the voice assistant named “Spot.” “Spot” exists primarily to answer quick questions about the destination such as where the nearest restaurant is, for example. It represents the “conversing” interaction type because it feels more natural and conversational than clicking buttons on a screen. We thought it was worth including because most apps today have some form of voice functionality, and it provides some variety in terms of how they are interacting with Spot On as well as adding a human element. It could also be useful when users are on the move, since they can talk while moving instead of having to stop in the middle of a crowd, which is annoying for them and others. This is not really a critical component, as the app can be used successfully to create great trips without ever engaging in the voice feature.

Lastly, there is a journal feature. This simply allows travelers to write journal/diary entries whenever they feel like jotting down their thoughts after the day or documenting a memory. Again, this is certainly not mandatory to be used in order to have a good experience, but the option is there for the user to write within a travel app about their vacation, which makes more sense than doing so in a random note-taking app that could contain all sorts of other information that can get buried/lost easily. This represents the “instructing” interaction type since the traveler is writing and instructing the app to save it in a common file format, which is very straightforward and fast. The feature can be disabled in the settings if the user would like.

Our top three features are unique compared to other competitors and are what set our app apart in terms of its effectiveness. What differentiates them is the fact that the recommendation engine does not just provide suggestions based on a premade list of attractions based on the location with some basic filters; instead, it works directly in concert with the traveler type quiz

and subsequent profile that is created to make more curated suggestions. Since the user is asked to make an account, this enables Spot On to store information from past trips over time, and the more realistic data that is given to a machine learning algorithm, the better it will perform. As suggestions get better over time, the app will almost feel like it can predict what travelers want before they even realize they want it. By providing the best service through the synergy between the recommendation engine, traveler type quiz, and profile features, brand loyalty will eventually be developed over time and users will grow accustomed to our app's ecosystem of features. This is superior to most travel apps, which lose nearly two-thirds of their users after a month and up to 82% after three months according to the Industry Benchmark Report for Travel Apps (Fox). Returning users creates a positive feedback loop for our ML algorithms to become more accurate.

Lo-Fi Prototype



Our lo-fi prototypes were an important part of generating ideas and being able to see them in action, so to speak, compared to talking about features in theory despite being created with pencil and paper. Since we were not really sure about the direction we were going to pursue after deciding that we would be examining the world of travel, our initial approach was to just brainstorm together and create two screens as an initial base to work from. In doing so, we compromised for the time-being by taking a vertical approach and only drew out a few screens but did them in-depth. This is seen in the second and third images, which reflect the map feature and our original "dashboard." This bears little to no resemblance compared to our final iteration. Once we saw what these two screens would look like, we quickly agreed as a group that it had too much going on. The cluttered nature of these screens exposed our lack of understanding of who we were really designing for and generated discussion about who our end user was really going to be. The map screen had a multitude of widgets/menu items at the bottom, which felt visually overwhelming since a map naturally has a lot of information packed into it in a small amount of screen real estate. This ended up being a positive development, as we eventually realized that we could not possibly appease all types of users without overloading the app with a laundry list of half-baked features and chose to focus on spontaneous travelers who prefer to "go with the flow." Once settling on our target audience due to the map screen, we realized that the home screen did not really fit that ethos. We had a "Calendar" widget on our menu, where the app would tell the user how many days are left on their trip as well as tell them the plans they made for that day, which fits what a more "Type A" personality would prefer. Bombarding the type of traveler we were targeting with organized information and calendars may remind more of work, which is something they are actively trying to get away from. With what we learned from both of these screens, it is noticeable in the profile page and the two quiz screens (our second iteration of lo-fi prototypes) that the layout is much more clean and there is not much else going on visually beyond exactly what the page is intended to do.

As a result of these lo-fi prototypes, we removed the widget menu seen in the map screen and dashboard screen, only keeping it in the profile builder screen because that is the one place in which all options should be available for the user to go to any screen. We removed the

calendar concept entirely since it did not match our target user, instead leaving in how many days they have left on their trip, which was much more minimalist and keeping with our mission in the hi-fi version.

Hi-Fi Prototypes

[The high-fidelity prototypes can be found here.](#) To run it, simply click the link and then click the “play” button in the top right. This prototype was made almost exclusively using Figma, although some alterations were made to certain images in it using Adobe Photoshop. It is used to generate discussion about the basic product by showing off animated versions of the product’s main features, including registration, a personality quiz, and business recommendations.

This version of the high-fidelity prototype went through many different iterations based on feedback from group members based on the low-fidelity prototypes and older versions of the high-fidelity prototype. In addition, I conducted a usability test with my roommates for the prototype using the system we saw in the Google “Guerilla Testing with Usability Cafe” video. I laid out the prototypes and essentially asked them to perform various actions (i.e. sign up, answer a quiz question, etc.) using the “play” function of Figma. I then asked them for each action which design they preferred (the original that we ultimately chose or the alternative design). With these usability tests, I gleaned many insights into what we could change with the prototype, though it should be noted that all of my roommates are of a similar demographic of male college students. We even tried a few different design styles as can be seen in the “Alternative Design” section of the Figma page. We decided to go for a more friendly card-based look that is welcoming to the user after getting feedback from my roommates.

Some of these insights included changing the wording during registration from “Sign-up” and “Sign-in” to “Register” and “Login” as the former wording could often be confused. Other suggestions included things like gestures, where the user could shake the device to get a new suggestion, and swiping when answering quiz questions instead of clicking a physical button. We also made some smaller changes like adding a link to a privacy policy, changing the color on certain text like the “Forgot Password?” link to make it more noticeable, moving certain features from the lesser-used “Settings” tab to the main dashboard, and making it possible to pull the map out from the dashboard instead of having to enter a completely new page. Overall, the many iterations of these prototypes helped immensely in forming a more user-friendly product, and iterating early and often greatly aided in more efficiently making our product.

Evaluation

In terms of evaluating our design and product, we essentially had a round of iteration each week. From the lab in which we made our first hand-drawn lo-fi prototype, we spent some time during the group work period of class to talk about the current version of either the lo-fi or hi-fi prototype and take turns airing out concerns/improvements. During the week, we would also ask roommates, friends, and siblings to look at the current version and “play” the Figma prototype so we could get an outside perspective beyond just our group since we all have biases. Tyler would then take this feedback and create an altered version of the prototype for the next week, where we would repeat this process again. As it got closer to the due date, we would then meet outside of class as well. The labs were very useful in sparking our collective thought process in terms of what areas we should be putting thought into to come up with a solid product at the end. It was certainly difficult to evaluate over Zoom, but we tried to overcome this by meeting often and keeping the line of communication open so no one drifted and felt out of touch where we were in the evaluation process. A list of changes we made to our various prototypes are listed below:

1. In our first prototype we did not have a username and password section. This was added after a group evaluation after a member suggested there should be a way to save settings to a profile through the creation of an account.
2. Along with this another group member suggested that there was a need for a true home screen because the flow of the application and where the user was supposed to go was very unclear in the early stages. This has been added to the final high fidelity prototype in the form of the dashboard screen.
3. After going through the initial prototype we also decided to, rather than make the attractions a list, present it as a swiping system like with Tinder. This felt more natural and dynamic since people know the idea of swiping left/right and it makes them feel more in control of determining their likes/dislikes. It also served as a source of data for the ML algorithm to learn user likes/dislikes.
4. In the section of the quiz titled “Who you would like to travel with?,” we added an option for those who are comfortable with strangers (along with original alone or with friends options). This was inspired partly through feedback from one of the group members and also from Travel Buddy, which is based almost entirely around the idea of meeting and traveling with strangers.
5. There was initially a photo-taking/album feature in the alternative design. We chose to remove this entirely because of our own experiences receiving too many push notifications from apps. Additionally, from asking roommates/friends, not a single person felt that there was a need to remind them to take pictures to capture the moment, instead saying it’s more natural and should be left entirely to the user’s discretion.

6. We also changed the UI completely from the alternative design we were seriously considering at first. The alternative was based upon the flat design theme that was popular and trending in many apps a few years ago, but it felt outdated and the color scheme was noted to be very dull after having roommates go through the interactive Figma prototype. We changed this to a card design inspired by Google's Material Theme since it is intuitive to most people and the company is known for being a leader in the area of UX design.

While we are unable to do this since the app does not actually exist, we developed a framework for how we would evaluate the live app in order to make improvements. Our framework will be based on an “in the wild” field study. When users download the app, we will ask them for permission to track their usage of our app and their location specifically (not anything else on their device). With this ability, we can track how often they accept/reject our suggestions while using the app in the real world. For every 10 recommendations we make of places to eat, visit, etc., if the user rejects seven or more of the suggestions (a 70% miss rate), we will prompt them with a quick questionnaire asking them why they have been dissatisfied with our recommendations. We believe this is an elegant and effective way of evaluating the app because it does not require a person to follow travelers around to physically ask for feedback which can be annoying and uncomfortable for both parties. Instead, the evaluation leverages technology to take place in the natural flow of the user engaging with Spot On. Additionally, we took inspiration from the Modern era of HCI, and in particular the approach of ethnography; using an “in the wild” study is superior to any type of controlled, lab-like setting in our case since the app tries to enhance an experience. Putting users in an unnatural setting is more likely to result in inaccurate data that fails to capture the subjectivity and nuance associated with a vacation.

The questions will initially start out as multiple choice options, asking questions such as “are the recommendations hard to find or select in the app?” or “do you not like Chinese food?” Based on their responses, the app will hone in on the main issue (i.e. a poor interface or irrelevant/incorrect suggestions). If a hard-to-use UI is the cause of the problem, a Report an Issue button will allow them to explain the problem and send a report to us as feedback. If the problem is caused by the content of our suggestion, the app will prompt them to explain (the user is vegetarian but barbecue places continue to be suggested). Based on their response, the traveler’s profile will be adjusted to make better recommendations in the future.

Attribution

Introduction/Problem Space - Prateek

I worked on the introduction/problem space section describing how we started the process of exploring the travel space, how we collected data and formed requirements based on them, the target audience, and some other problems we thought about pursuing. I helped with the use case and personas visualizing the requirements and proofread everything at the end.

Team Dynamics - Angela

I worked on providing information about how the team worked together to complete this project. Since much of the labs before had prepared me for this question, I took information from previous labs and reflected on it. Since the team worked well together, communicating and checking in frequently with each other, there was not much to report on in team dynamics. I also formatted the paper and added the Table of Contents.

Features - Michelle

I worked on the ranking of the features for the final project. I drew from the lab and our revaluation to consolidate the list of features and account for some that may have switched in importance over our iterations. When listing them I gave some insight into how each feature functioned and how they fit together to create the right experience for the user. Also, I wrote about the unique parts that were included in the top three features of the app.

Low Fidelity - Elliot

I worked on creating the low-fidelity prototypes that we used for the beginning iterations of our product. It took a good amount of collaboration with other group members when first starting out, turning our discussions and concepts into things we can actually conceive and, from there, determine if those ideas are a viable addition to our product. We went through a couple iterations and luckily were able to decide early on in the lo-fi prototypes the main focus of our product, which really helped in solidifying those features when creating the hi-fi prototypes.

High Fidelity - Tyler

I worked on creating the high-fidelity prototypes that we ended up using throughout the design process and with our final design. This took a lot of collaboration with different members of the team, especially Elliot who managed the low-fidelity prototypes. In addition, I conducted usability tests with my roommates to help determine changes that needed to be made to the product. Using the feedback from my group, the low-fidelity prototypes, and the usability tests, I made various iterations of the high-fidelity prototypes to help users get a better insight into what our product is and what a real, working version of it might look like.

Evaluation - Adnaan

I worked on the evaluation section. This involved keeping track of the suggested changes that we worked on throughout this project process. This involved much collaboration because I was building off the ideas of those in the rest of the group. Brainstorming and seeing which features would be useful was a key component to this evaluation. Also note taking in these brainstorming sessions along with those who were initiating the prototypes at the same time to make sure we were on the same page with the changes.

Closing Section - Victoria

I collaborated with anyone who needed help on their sections. Since I felt like writing the conclusion was not enough, I told anyone who needed any help to come to me. I proofread the document and had a good understanding of what everyone wrote, and this helped me to write the conclusion. I also created the title page and helped with some formatting.

Conclusion

An important challenge that we faced as a group was deciding on an idea that had not been done before. We thought our app would be very complex in terms of data we would need to make content for multiple different destinations. We discussed how, when the app would first be rolled out, we would have to focus on one test city before trying to find tourist activities in other ones. We thought about Pittsburgh and how many different locations there are that we could recommend to visitors. This helped us imagine what kind of content would be on the app, and how helpful it would be to have tailored suggestions for things to do. An important part of our app is going beyond what you can find on Google Maps, listing temporary things like festivals, pop-up shops, and food trucks. A reason that this app doesn't already exist is because of how difficult it would be to collect all of this data about hundreds of different destinations around the world. It was exciting to think about what it would be like to travel if this app was real.

Before we settled on this idea, it was really challenging to come up with an app that had not been done before. At first we were focused on making an app that had to do with COVID-19 because new problems have more room for novel solutions. However, once we started thinking about genuine things in our lives that could be improved, it became much easier to think of something new without having to rely on the pandemic. The concept of "pain points" helped immensely.

It was a little surprising how personal it can be to design a UI. With input from inside and outside of our group, we could see our app grow to become aesthetically pleasing and easy to use. With lo-fi prototypes and easy to use hi-fi ones, we did not have to do any intensive coding or art to design a UI. The fact that prototypes were quick to make really allowed us to draw things up without feeling too committed to them. Having input not only from everyone in our group, but also from Tyler's roommates, really helped to make a great final product.

References

<https://www.phocuswire.com/clevertap-travel-apps-benchmark>