**Safe Zone**

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**Introduction/Problem Space**

During the COVID-19 pandemic, people need to take necessary precautions to reduce the spread of the virus, like wearing masks, practicing good hygiene and social distancing. Activities like going out to a restaurant have become a dangerous pastime. Restaurants have been hit significantly hard by the pandemic with a huge reduction in business. With restaurants implementing a set of protocols for customers to abide by, it has helped combat the spread of COVID-19. However, finding protocols for these establishments can be an overwhelming and frustrating task. It is a time-consuming process that could result in people becoming annoyed with the constant cycle of compiling all this information. With applications like Yelp, restaurants can list their COVID-19 protocols on the site, but some do not utilize the opportunity to do so, leading to uncertainty for the consumer. Q&A sections of certain restaurants on the site have people asking about the safety measures that the establishment are taking, yet with no answers. Also, deciding to go to these places doesn’t guarantee the customer that there are spots available for them. An important method of combating the spread of the virus is to practice social distancing and reduce human interaction. When people arrive at a location to dine at, they may not know how many people are there. There may be many people eating there, leading to an increased chance of coming into contact with the virus. Applications, like Yelp, are not able to display the amount of people that are present, limiting the knowledge of the consumer and adding uncertainty for them.

For our final project, we’ve decided to create an application that partners up with these establishments to not only help users find places to eat but to also help promote restaurants that have been affected by the COVID-19 pandemic. Our primary target audience for this application, are people who are tasked to find safe places to eat at, like parents of a family or young adults, and also people who are immuno-compromised and need to make sure that where they are going to eat is a safe environment for them. The application, named Safe Zone, utilizes a map interface that displays the user and their surrounding location. On the map, there are different locations represented with different colored dots. These dots on the map are different restaurants that are partnered with the application. The different colors represent the current amount of people that are at the location at the time of checking. When tapping on a location, pictures of the establishment and important information of the business appear on the screen, like the restaurant’s name, address, amount of people that are currently there out of the amount that are allowed to be there at once (tracked through the restaurant’s POS system), the rating of the restaurant, etc. Also, on the page of the restaurant’s information, there are two very important buttons, one displays the establishment’s COVID-19 protocols and the other shows the user reviews written about the restaurant. This benefits the user greatly because not only are the COVID-19 protocols all displayed in this one page, but they are also written by the establishment themselves rather than other consumers answering these questions on behalf of the business. The app has the user create an account so that they can be a part of important features, like writing reviews and favoriting places for easier access later on. Also, the user reviews are a great way for users to filter what restaurants they would like to eat at because people can see specifically if there is anything to take note of about the location (are staff taking necessary precautions, the seating arrangement, etc.). Also, the application can make suggestions for places to eat that are reputable and have many spaces available, making it easier for the user to make a decision. Another feature that would appear on the information page of a business that would greatly benefit a restaurant is the “Safe Zone Certified” badge. If a business has excellent reviews and is taking the necessary precautions and safety measures to make the area safe to eat at, there will be a “Safe Zone Certified” badge. This would benefit them nicely because a consumer may see this badge and know that this place has a good reputation for abiding by necessary precautions that keeps their customers safe. It can give the restaurant positive exposure, leading to more business.

**Process**

Before greenlighting the development of Safe Zone, we had two other problem spaces in mind. The first one primarily had to do with college students. Because group gatherings and hangouts have become a potentially dangerous pastime due to the pandemic, people’s social lives have been halted. With a reduction in social interactions, this may lead to increased stress and difficulties with maintaining a healthy academic record. This is especially a problem for incoming freshmen, who may have a very difficult time making friends. We decided to steer away from this problem space because there are many popular applications that help people maintain a social life, like Discord, Zoom and Skype. These are especially useful because they are safe methods of communication and interaction with other people. It would’ve been very difficult to develop an application that does something new, as these applications are already unique, especially Discord with its server creation feature.

Another problem space that we had in mind also had to do with college students. During the pandemic, people may have a harder time finding places to work out, leading to a decline in physical activity. Places like the gym have become hot beds for the spread of COVID-19. We were leaning towards an application that would be associated with gyms, having people reserve times when they would work. We decided to steer away from this problem space because after doing research, we’ve found that this already exists through the University of Pittsburgh’s gyms.

**Team Process**

Our group utilized different applications to complete the tasks of this project. Each week, our group met twice using the application Zoom. This was crucial for the completion of the project because on there, we would discuss important matters and issues that dealt with the project, like concerns and disagreements. Zoom also has the “share screen” feature, which is a very helpful tool that allows everyone to share important information with everyone. The “share screen” feature also helped us do our evaluations for our lo-fi and hi-fi prototypes. To plan the times of the meetings, we would use a website called “When2meet”. This website had the option for us to select a specific time window (in our case, we used a weekly time window, displaying the days of the week from Sunday to Saturday) and have each of us set our availability for each day. After everyone had set their available times, we would then look to see what times everyone was available and set our meetings then. During the meetings, we would also work on the same Google document and divide the tasks. After everyone had finished their tasks, we all grouped together again and looked through each section to make corrections if needed and to have everyone on board. The completion of tasks that this final paper had assigned to us has been in the works for weeks, spanning across all of our zoom meetings, which usually lasted for 1-2 hours.

**Team Dynamic**

**Team Roles**

In our group we have five members, and while each of us technically had a designated role, we mostly worked together as a group. Joe was our team leader and took care of coordinating our group for meetings and what we would work on in the meetings. He also was the one that would share his screen and stir up creative conversations. Matt is the scribe of the group, which Joe also helped with. A lot of the time, everyone in the group was writing for different prompts as we would split up the work evenly. Helen was our PowerPoint specialist and took lead on creating our PowerPoint. Menarsh and Courtney were both researchers for our group and compared our apps to other apps to get good ideas of what has and has not been done to ensure uniqueness within our app. Even though we had roles, we all crossed over into other roles and helped each other out in the project. It felt less like we actually had roles and instead we all just made sure to do our part in brainstorming, helping to write, and coordinating the group effort to complete the project together.

**Collaboration tools**

* Google Drive (Slides and Docs)
  + Primarily used to work on tasks together
  + Used for file sharing between the groups
* Zoom
  + Where we would have our meetings to discuss and work on tasks
  + Screen Share feature was also utilized
* When2meet
  + Used to find available times for everyone to meet through Zoom
* Adobe XD
  + Adobe XD’s cloud feature was important because it allowed us to work on the hi-fi prototype together

**Conflict Resolution**

Our group rarely had conflicts, but we did have a plan for conflict resolution. Our plan was to do a majority vote to resolve conflicts if they came up. We only ever used the majority vote once, and it was to decide which problem space we were going to tackle for our application. After that, the way our group worked was very efficient and constructive, so instead of flat out accepting or rejecting proposals we offered suggestions to make it more relevant to the project or to make it a little more fine-tuned to what our goal was with the application. We were on the same page for almost everything on the project, so it was very easy to talk about concepts and implement them in the best way possible.

**Product**

**Major Features**

1. **COVID-19 Protocols**: Our application will provide users with the restaurant’s COVID-19 protocols. Information like their seating arrangement, hand sanitizer placements and capacity reduction will be posted. Since the restaurant is partnered with the application, all of the information is coming from the business owners themselves, rather than people who aren’t associated with the business answering for them.
2. **POS Customer Tracking:** This feature uses data collected by the restaurant’s POS system to update the capacity of each restaurant on the app. This lets the user know whether there is a high count of people there so that they can reduce their chances of possibly coming into contact with the virus or if there is space for their party available at that restaurant
3. **Badge for Restaurants:** The badge is used to certify restaurants that are following all mandated COVID-19 protocols as well as providing a safe and clean environment for customers. Similar to being verified on social media, the certified restaurant badge will be assigned to all restaurants meeting the safety criteria, allowing users to make safer choices when deciding where to dine. It also can give restaurants positive exposure, leading to more business.
4. **Map Interface**: This interface is a very familiar one that users can easily navigate through.Each restaurant is colored (green, yellow, red) to indicate their capacity status. This feature helps the users easily figure out which restaurant still has seating available in the app with a useful color system.
5. **User Sign-In**: With the user being able to make an account, they can partake in very important features of the application, like writing reviews and adding restaurants to their “favorites” for easier access next time. They are also able to look at other peoples profiles and see the reviews they’ve left or their “favorites”.
6. **Reviews Page:** The review page allows users to write a review on their experience at a restaurant. Here you can find more information about how the restaurant handles COVID protocols from a real user.
7. **Suggestions Tab:** The suggestions tab will give users a list of restaurants in their area that are at a safe capacity at that time. Users will be able to view restaurants near them with good reviews (as mentioned in the reviews page section) that will provide them with a safe dining experience, even when they aren’t able to decide on where to eat.
8. **Restaurant Information**: When tapping on the restaurant’s location on the map, people are able to see the business’ information, like the name, address, phone number and hours in a familiar card format.
9. **Notification System:** The user can set a notification system for them to be alerted by the app whenever it is time for them to find somewhere to eat. This notification system will alert them at the set time with suggestions on where to eat.

\*\* For a walkthrough of the application showcasing these features, please refer to the video that has been included in the zip file titled “Hi-Fi Prototype Demonstration (Final Project).mp4” \*\*

**Top Three Features**

Our top three features for Safe Zone (COVID-19 protocols from the partnered restaurant, the real time customer tracking through the POS system and the “Safe Zone Certified” badge) are all really unique aspects of the application.

On websites like Yelp, restaurants have the option to list their COVID-19 protocols, but a majority do not utilize the opportunity to do so. For instance, a restaurant by the name of Tessaro’s, which is located in Bloomfield, has a page on Yelp that is “unclaimed”, meaning that the business owners are not affiliated with the page. Their COVID-19 protocols are not listed, and people are asked to contact the business if they have any questions regarding their safety measures. In the Q&A section of the page, people are asking about their safety measures, nobody has answered their questions. With our application, our number one priority is to provide users the COVID-19 protocols for these establishments. For a restaurant to be a partner with Safe Zone, they need to provide this important information to us so that we can share it with the user. This sort of requirement for a partnership is a very unique idea that we have not seen anyone utilize.

Our second feature focuses on restaurants enforcing the protocols they have listed on our app, as it tracks the live capacity of the restaurant. Whenever someone new enters the restaurant and is seated, the app will update based off of the POS system within the establishment. The POS system for a restaurant has a map of the seating area and allows for the host or waiter to click on a table and list how many people are seated there. With the restaurant using this system our app will be able to update as soon as new customers are seated and will add together all the seats to list the live capacity of the building. Similarly, when the table is listed back at zero occupants the capacity will then be lowered to the new number. This is another extremely important feature of our app because following the COVID-19 protocols allows for everyone to have a safe dining experience. This feature also makes our app unique from other sites and applications because it tracks the occupancy of the restaurant in real-time, whereas other apps just list occupancy limits.

Our third feature, the “Safe Zone Certified” badge, is another important and unique aspect of our application. This not only benefits the user of the application for making the decision of where they would like to eat but also benefits the business itself. Because of the pandemic, the restaurant business has been hit pretty hard. There is a reduced amount of people going out to eat due to fears of contracting the virus through unsafe procedures businesses are committing or places not upholding their COVID-19 protocols. When a business strictly upholds their COVID-19 protocols and receives very positive reviews, they will be given this badge. This would not only make it easier for users to find somewhere to eat but also would lead to positive exposure for the business, which will cause them to see an increase in revenue. Not only does Safe Zone benefit the user but also the businesses partnered with it. This is a unique feature since this whole pandemic is a “new era” in our lives and people have not utilized such an important concept of branding a business with safe operations on applications like Yelp.

**Lo-Fi and Hi-Fi Prototype**

**\*\* Please refer to the PowerPoint included in the zip file titled “Lo-Fi & Hi-Fi Prototype.pptx” \*\***

**Evaluation**

Our product went under multiple evaluations throughout the development process. After the initial idea presentation in class, the team gained some insight into the product’s appeal and relevance to our peers. Based on that feedback, we were able to add in some more features to make the app more usable for real people living in the pandemic. One specific criticism from the class that really helped us craft one of our most important features was that our application idea had no benefits for the businesses who were partnered with us. This led us to create the “Safe Zone Certified” badge feature, which would help not only the users make a decision on where to eat but also would give a business positive exposure if they were awarded with the badge. This would help them attract more customers in a time where the restaurant industry is hit the hardest.

We also had multiple check-ins with the teaching staff who helped us focus on our design and mold it to the requirements of the projects through the multiple lab reports we have submitted. One idea for an important feature came specifically from Professor Perkoski asking us how the application would know how many people are present in the restaurant at a given time. This helped us improve the system by having it associated with the businesses POS system, which would give real-time updates to the application with how many people are present in the restaurant at any moment.

We held multiple group meetings to give our own feedback on the product and brainstorm ways to improve it. One major change that came after our group meetings was the decision to focus on solely restaurants rather than all types of establishments like gyms or grocery stores. This was because we weren’t able to come up with a reliable method of tracking capacity in venues with people constantly entering and exiting. Our first major self-evaluation came when we all met over Zoom and navigated through our lo-fi prototype. We decided that we would need to make the product more aesthetically pleasing and easier to navigate, as well as adding some specifics with our app functions. We wanted to make the app look less generic and more user-friendly. Features of Safe Zone that came out of the evaluation of the lo-fi prototype were the logo of the app, the “suggestions” and “help” buttons on the map, user sign-in, the color coordinated dots on the map for easier navigation of available restaurants, the COVID-19 protocols button and the user reviews button.

The group gave continuous feedback throughout the development of the hi-fi prototype and then did an evaluation once it was finalized. During the final evaluation, we were able to come up with a few potential changes that could be made to improve the product in future versions. Potential improvements included filtering restaurants within the search function so users could find a certain type of restaurant if needed or creating a system for making reservations in advance at a sit-down restaurant and just adding more branding to make it look more aesthetically pleasing.

If we were to take steps towards actually developing and producing our product for consumer use, we think it would be important to have a user test the product by using it for a week or so and keeping a diary or log of their experience with it. They could track all of their impressions, good and bad, so we could have a more concrete idea of how this app would be used in a practical setting.

**Attribution**

For the final document we created a zoom call and talked about each section and our thoughts on what we should be writing. Then we split up the sections and worked on them individually before coming back together and talking them through.

**Matt**: My role in the project was to be the scribe, and while I may not have done all of the writing, I was sure to read over everything and help provide clarity if anyone else was struggling to write something. I feel overall we all really helped each other out and split the work up well. Within this document specifically I wrote the “Team dynamic” section, as well as the second paragraph in the “Top three features” section with the assistance of everyone else in the group. I was also sure to provide feedback and suggest things for anyone else in the group who may have wanted some help for their sections. It didn’t feel like anyone tackled a whole section on their own without help and input from the rest of the group, which really helped us make a cohesive and well-thought-out report.

**Courtney**: As I’m sure my group mates have mentioned, I think this project was very collaborative. It didn’t feel like much of the work was done by any one person. I had one of the two researcher roles within the group. Within this role, I was able to look at practical applications of our product as well as find similar apps that already exist to gain inspiration and ideas from. I was also able to take a look at some of the restaurants in the area that we are all familiar with and figure out how Safe Zone would fit into the existing restaurant industry in Oakland. For the final report, we all took small sections to work on independently then came together at the end to revise each person’s sections and make the report more cohesive. I worked on the evaluation section in the report and assisted in the final readthrough with my groupmates.

**Helen**: For the final report, my role is to create and organize the PowerPoint. Instead of writing down the information in the report, we decided to create the PowerPoint in order to demonstrate our prototypes more specifically. I summarized the information of the low-fi and hi-fi prototypes that our group members discussed during the meeting. Then I put all the information down in the slides, including pictures and videos, in an organized way. Once I finish the PowerPoint, the members will check it and add more details to it if I missed something important. In addition, I helped our team leader to set up the Zoom meeting and send out when2meet for scheduling.

**Menarsh** : My role for this project was research so I assisted in comparing our app to others with similar ideas and functions. I helped look into the market space we wanted to go into and see if there was any competition to our product. We continuously had to revise our product since our initial meeting and the research helped us go in the right direction. Beyond the research we worked on labs and assignments as a group. I helped input my ideas throughout the process and helped work on the final document which we had split up and then went over as a group.

**Joe:** For the final project, I had the role of being the group leader and scribe. For this document, I wrote out the “Introduction/Problem Space” portion, as well as writing out the first and third features of the subsection “Top Three Features” in the “Product” section. After we all completed our portions, I helped revise the final document with everyone else as we read through it as a group. Mentioned by my fellow group members, we all worked very closely together on this project paper. We may have tackled sections by ourselves, but we all came together to look at each section and made the necessary revisions. As mentioned in the “Team Dynamic” section, I would organize the meetings for the meetings so that we all could meet and work on the project. Also, I would set tasks for each meeting so that all of us could complete it and be ready by the deadline.

**Closing Section**

Due to the COVID-19 pandemic, working on this project in an entirely remote setting was a very interesting experience. All of us were on very different schedules and coordinating times to meet and keeping constant communication was, at times, difficult to do. This was a whole new experience for all of us and it has taught us so much in terms of cooperating and being organized. With the patience and cooperation, we’ve all contributed to this assignment, we were able to successfully finish the assignment by its deadline. At first, this was a very overwhelming assignment to everyone. It involved so many steps and tasks to complete and we were unsure how we would actually be able to finish it all. When we started to meet on Zoom, we began to discuss our game plan for tackling this assignment. As we started to communicate more and more and divided up tasks, the process of completing the project became much easier for us. We all learned how to stay organized and keep communication with each other to ensure a smooth working environment.

A suggestion that comes to mind is having the project be more suitable for a remote environment. Although we are technically in the first “all-remote” semester of the pandemic, we feel that some portions of the project were very difficult to do in our meetings remotely, like creating the prototypes. Adobe XD’s cloud feature is a fantastic tool to use when working with everyone, but other applications may not have this kind of feature. The Lo-Fi prototype was tough to work on together because one person had to sketch it out and present it to the group when they were finished. If there was a mistake, the person would have to redo the sketch.