Section 1: Executive Summary

Test Highlights:

To gain a better understanding of whether the design requirements from our initial research were met in the DIVOC prototype, user testing was conducted. Methods of online testing and virtual face-to-face testing were used to obtain this data. Testing was conducted in a similar manner to maintain consistency across both forms of tests.

Online testing was conducted via usertesting.com. Three participants selected at random were chosen to review the DIVOC prototype. Each participant reviewed the application following the tasks set forth. Responses were vocalized and their interactions were recorded in a screen recording of their session.

Responses recorded from this method gave overall neutral to positive feedback towards our application. It however is clear that there is scope for improvements that can be made to the application. While the participants were given a brief introduction to the application prior to opening it, when arriving at the landing page they were still uncertain what type of application they were entering. Even after entering the application, once on the menu screen there was confusion as to what is expected on some of the pages. For example, one participant stated in reference to the general information button that it would "give information about how to use the application" and then went further to ask why we would need to have how to use the application at the top of the menu screen. Additionally, another individual gave comments on the safety of the application. While on the social and communication page, a participant noted that he would be hesitant to select anything from the application due to the uncertainty of safety within the application. He continued to note on the verification process of posted links.

Face-to-face testing was conducted via video calls. Three participants were chosen to review the DIVOC prototype. Again, each participant reviewed the application following the tasks set forth. Unlike the online testing, users were given the tasks directly from the team member conducting the interview. Responses were vocalized and their interactions were seen on a shared screen element of their session.

Responses recorded from this method gave overall positive feedback towards our application. As mentioned from the results of the other method, it is important to note that there is still some scope of improvement that can be incorporated in the prototype. It was noted several times by multiple testers during this process that they were unsure about what certain pages would be used for prior to opening them. For example, one participant stated if they could change one thing, she "would work on making things easy to understand, especially on the menu screen." Ratings were in general favorable to the DIVOC application. One tester remarked, "This application, while in response to the pandemic, does so in a way that does not make the user feel overwhelmed with data and can inform and distract depending on the user's desire."

Through both of these forms of testing, the team has been able to gather insights upon areas for improvement to further the development of the prototype. After conducting a pre-evaluation prior to the user testing, it was seen that most of the users don't quite understand what the application has to offer solely based on the description provided at the welcome page of the application. Furthermore, the majority of the participants across both forms of testing have

indicated in some way or another that functional elements such as a “back button”, diverse forms of visual representation of data, reference to sources, and vibrant color schemes are all missing in the current prototype. Overall, these above mentioned elements will need to be included in the long run to facilitate the user customization of the app for personalization and further enhance the simplicity or attractiveness as a result.

Recommendation Analysis:

Based on the user testing experience and the findings discussed above, we were able to gather recommendations based on their input and experience. These recommendations can be sorted by priority. The high priority fixes would be those that should be corrected prior to the final deliverable. The low priority fixes are those that would be corrected if there is time.

High Priority Fixes:

- Clarity
  - Ensure that the screens are named in a clear defining way. Especially the welcome screen message should provide an appropriate text to summarize the expectations of the application.
- Usage
  - Ensure the landing page gives a proper overview of the application. Navigation should be made a little easier and direct through the use of “back” buttons and clearer naming.
- Demonstration
  - Ensure that as many features as possible are demonstrated in the prototype. Incorporate user customization integration with profile for fitness pages to personalize user traits relevancy.
- Presentation
  - Ensure that the data is presented in a way to make it easy to understand. Include other forms of visual representation to better showcase data interactively.
- Attractiveness
  - Ensure that the application is appealing and promotes uplifting news through success stories.

Low Priority Fixes:

- Data Verification
  - Ensure posted links have a method of verification in place for user safety.
- Sources
  - Ensure lists of detailed sources/APIs used for the users are provided
- Individualization
  - Ensure that the application has features that are specific to each user

Section 2: Study Design

To allow for accurate and unbiased user responses, testing was standardized between the face-to-face testing and online testing. Choosing participants for the testing consisted of introducing new users who have little to no information about the system, and also one individual who took part in the requirements gathering phase interviews. This allowed us to match whether the original expectations at a high-level were met in the prototype and also consider whether new users are able to understand the prototype.

Testers were first given a brief explanation of the application and circumstances of its use. This description of the application was composed by condensing the original explanation used in the GDP1 report.

To allow for an interactive prototype an interactive PDF of our revised high-fidelity prototype from GDP3 was shared with all participants. Once downloaded, a tester can take advantage of all the program buttons and features of our application.

A guided walkthrough was then conducted to gain insight to initial thoughts on the application. Participants were asked to explain their understanding of specific buttons and features of the application without fully exploring the application. For example, testers were given the instructions such as, "Without leaving the menu screen, describe what you would select first. ** Do not select anything yet. ** If you would leave without clicking anywhere, please explain why." Once initial data was collected, users were able to fully explore the application for as long as they desired. The users were then asked to rank statements of the heuristic evaluation and provide explanation to their choices. With the help of remote face-to-face testing, we were able to directly see the participants experiencing interactions and generalize some patterns or trends that would further help in the development.

Section 4: Participants

Participants were of various backgrounds, including age, sex, location of residence, and occupation. In total, six participants partook in the study.

Participants for this study were chosen to meet the planned use case of persons aged 18 to 50 residing within the United States. The ages of the participants that partook in our user testing ranged from 20 to 50, with the mean age being 26. As the DIVOC application is intended for use by both genders, all sexes were involved in the data collection. Of the total participants, half of the participants were female, the remaining were male.

The intended environment for use of this application is within the United States, the participants were of those residing within the United States. For that reason, participants were from a variety of areas in the country. These participants are in a variety of fields including full-time students, electricians, and product management.

While the uses of the general public are the primary function of DIVOC application, in order to account for both the general public and essential worker uses, representation for each party was

selected accordingly. For that reason, ensuring that all aspects of our application were in line with the healthcare worker audience, we included that profession in our user testing as well. Healthcare experts were able to provide additional insights on information that could be included for the welfare of the general public.

Section 3: Usability Issues and Design Recommendations

High Priority Fixes:

- Ensure that the screens are named in a clear defining way.
    - Analyze the initial impressions based off the menu screen. Adjust the titles of any misinterpreted label to ensure that each screen can be understood appropriately.
- Ensure the landing page gives a proper overview of the application.
    - Rework the landing page to ensure that the user can understand what the application is used for prior to delving into it for themselves.
- Ensure that as many features as possible are demonstrated in the prototype
    - Examine the expected features on each screen of the prototype. Determine if there are any elements that can be added to any one screen.
- Ensure that the data is presented in a way to make it easy to understand
    - Analyze where the testers found data to be better represented in other forms. Determine whether there is a more preferred way to display the data.
- Ensure that the application is appealing
    - Discuss the design elements currently used and analyze the feedback received. Determine if there is a better way to present the application. Reformat accordingly.

Low Priority Fixes:

- Ensure posted links have a method of verification in place for user safety.
    - Develop and implement a verification process to ensure the safety of the links shared between users.
- Ensure lists of detailed sources/APIs used for the users are provided
    - Create a webpage or devoted section of the application to share the sources and APIs used.
- Ensure that the application has features that are specific to each user
    - Utilize machine learning to develop individualized elements to the application. For example, an individualized fitness plan could be provided to users.

In many cases, those testing the DIVOC application had a positive experience while conducting a test. In some cases, however, users found it difficult to properly evaluate the prototype due to various factors. One factor was the general understanding of the purpose of the application. For example, one online tester remarked, “If the application is used to distract from the coronavirus why are you putting so many alerts about the coronavirus.” This confusion gave testers a difficult time accurately understanding the design choices implemented. Additionally, due to the

prototype being only semi-functional, testers were unable to fully explore the application. One tester noted, “It is easy to use however needs to go through some usability testing because it is missing some major things (e.g. back button, white space, etc.).”

Interacting with two different methods of user testing allowed us to witness the pros and cons to each method. Given a choice between the two methods, a remote face-to-face user testing is preferred over the online user testing.

Online testing was conducted via usertesting.com. Three participants selected at random were chosen to review the DIVOC prototype. Each participant reviewed the application following the tasks set forth. Responses were vocalized and their interactions were recorded in a screen recording of their session. While having someone who is removed from any bias towards your application can prove itself advantageous, the responses received were not beneficial. Those who reviewed the DIVOC prototype did so without any team member observing them. The responses show a sense of apathy towards their task. Additionally, without the ability to contact a team member, any questions that they had were left unanswered, in turn causing a snowball effect on their understanding of the application.

Face-to-face testing was conducted via video calls. Three participants were chosen to review the DIVOC prototype. Again, each participant reviewed the application following the tasks set forth. Unlike the online testing, users were given the tasks directly from the team member conducting the interview. Responses were vocalized and their interactions were seen on a shared screen element of their session. During the sessions, users were able to avoid being caught up on minute details by asking questions. These questions made it possible to give us feedback as to what confusion might be caused by the application, while allowing the user to continue to explore other elements of the application. In addition, those reviewing the application understood the necessity of a thoughtful and unbiased response. In turn, those participating in the face-to-face user testing devoted more time and thought when reviewing our application.