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COVID-19 Interface Research

Abstract:

The overall goal of the interface is for the user to be able to easily find the number of positive cases and hospitalizations on a town level as well as enable user to be tracked to find out if a location that they spent an extended period of time at is high risk due to contact tracing. Throughout the entirety of quarantine, I found it difficult to find out specifically how my town was doing in terms of cases and hospitalizations but could only find the data at the state level. Therefore, the main goal of the interface is for the users to be able to find out the data in their own town so they can get a better idea of what their risk of exposure is in their location.

The method of gathering information is COVID-19 case surveillance by the CDC. Case surveillance is essentially the hospitals, labs, and testing centers reporting their results to their local public health authority who then reports the new cases to the CDC. The CDC also has contact tracers that are able to notify different groups of people that may have been in contact with those who tested positive. They sort their priority of notifications to patients who are already hospitalized, healthcare workers, and people who are living in close quarters with a lot of people. They then notify the people who are at high risk or are pregnant. The last two groups are people who are showing symptoms but didn't fall into the other categories and asymptomatic people who didn't fall into the other categories. This use of contact tracing will be useful in using

a heat map like design on a map tracking the user's location so that if there was somebody who tested positive, the locations that they came into contact with would be red on the map so that user's would know either to avoid that location or if they were also at that location they should know that they should get tested as they may be at risk of exposure.

Interface and UX:

Using Norman's Seven Stages of Action we can see how the current rough state of the interface will create a seamless experience for the user.

In terms of discoverability, it is possible for the user to determine what actions are possible as each action is either in a search bar or displayed with an iconographic signifier. For example, the risk exposure button is discoverable for the user as it is an icon that many people will recognize as a friend or groups icon on apps such as Facebook that many people are familiar with. The buttons that are used to switch between the daily and total or the positive tests and hospitalizations are discoverable because of the blue square around the icons showing which information is currently being displayed. The blue box and white background around the information that is not being displayed makes the icon's ability to switch to the new information discoverable to the user as well.

The interface provides immediate feedback to the user whenever a button is pressed. For example, when the user presses the total button to switch the information to the total instead of daily, the daily button's background will turn white while the total button's background will turn blue as well as the change in information underneath it. This also stands for the buttons used to change the graphs as the button's background colors will change as well as the information being displayed on the graph. When pressing on the search bar to type in a town name the user will get

automatic feedback that their request went through because the boxes auto-filling in the town name will appear underneath the search bar and updating whenever a new letter is pressed by the user on the keyboard. Finally, the feedback the user receives by pressing the risk exposure button is simply being switched over to the location page where they can get all the information they need.

The design very easily gives the user all of the information that they need with a simple interface. There are only 6 interactive buttons and their uses are all very clear. The buttons used to click between daily and total as well as the button to click between positive cases and hospitalizations is made clear by the common icons that people will be able to recognize. The only button that brings the user to another page is the risk exposure button and even from that page there is a very simple back button at the top to get back to the main page. Therefore, the design creates a good conceptual model of the system and allows the user to understand and feel in control of the interface.

In terms of signifiers and affordances, there are 7 different signifiers that suggest affordances in the entire interface. The search bar has the icon for location that signifies to the user that they need to type in their location. The search bar itself affords typing which allows the user to type in the name of their town to get that information. The signifiers of daily and total are just the words daily and total on the buttons above the breakdown of information on the cases and hospitalizations. These buttons afford clicking and by clicking these buttons the user is able to switch between the two options easily. The signifiers of the hospital icon and positive icon show that these buttons are to switch between the hospitalization and positive cases on the graph. Like the button above the information at the top, these buttons afford clicking so that the user will be able to easily switch between the two options. The signifier of the friends or group icon

that is used on several social media platforms show the button that affords clicking which will bring the user to the location's page. Finally, on the locations page there is a back icon that signifies going back to the main page and afford clicking which will bring the user back.

The mapping is simply just putting the buttons to change between total and daily cases and hospitalizations above the information that provides daily or total cases and hospitalizations. This is also done by putting the buttons to change between positive cases and hospitalizations above the graph that will change by the click of the button.

The information is constrained only to Massachusetts and the towns within the state. Also, it only shows the number of positive cases and hospitalizations and not any other information such as deaths or negative results. By providing the user with just these few pieces of information, however, it lowers the level of complexity of the interface and allows for a simple and easily understandable design that the user will be able to get the information they need easily rather than having to go through a complex interface to get there.

Marvel App Link: https://marvelapp.com/prototype/12i83ba4