**To:** Amy Bell

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**Re:** Data Dashboard Memo

We will discuss about the Covid-19 Surveillance Data Dashboard in this Memo writing. There are three parts; in the first, we will talk about data visualization and explain what covid-19 graphs are. The audience and justifications will be covered in the second section, and the conclusion will be covered in the third section.

**Data Visualizations:**

The world map shows the top five countries that have the highest number of deaths till March 2023. These numbers of people's death updated on daily basis and may change in the upcoming days as per the source. The purpose of this map is to get information about which countries are in the red signs so we can stop the interchange of traveling. It is important that we always need to take mandatory precautions such as avoiding gatherings, wearing masks, and practicing social distancing. We chose the mapping the world map because we wanted to show the top victim countries due to Covid-19.

In the first bar chart graph, we showed the increasing number of Covid-19 cases by two sources such as Johns Hopkins and WHO. The bar chart is showing us the exact number of people who got Covid positives in 2020. We can see that Germany has the highest number of cases as compared to Bangladesh as per John Hopkins. On other hand, India has the lowest covid rate on 17th March when the lockdown has been started. We used the bar chart to indicate the total confirmed numbers of Covid cases by the sources in 2020 because bar charts are used for discrete data over some selected countries.

We used the second bar chart graph to present the total number of deaths of people over the countries by Covid-19 in 2022. The horizontal bar chart is showing to us the total number of people who are dead due to Corona Virus in China, Bangladesh, Russia, India, and the USA. We can observe that China has the least number of deaths in 2022. On the contrary, the USA was in the top position regarding deaths. We applied this bar chart because the number of total deaths over the countries is also discrete data, not continuous data.

The third horizontal bar chart graph is the about total number of people who got recovered successfully from Covid-19 from 2021 to 2022. We can see the highest recovered countries from Covid-19 due to vaccination. About 10,13,22,779 people in USA people fight against Covid and recovered fortunately. From the dataset, we got the total number of recovered people over time, and we used the data as a bar chart because the data is not continuous. Data on the number of people is discrete data.

In the last line graph, we showed the three types of vaccination which are distributed in Michigan from 2020 to 2023. We presented the most used three vaccines in Michigan state such as Janssen, Moderna, and Pfizer vaccines. The data we got from the source is continuous, so we used a line graph to show many doses of vaccinations are allocated in Michigan over continuous time.

**Audience & Design Justification**

Our data dashboard shows a detailed analysis of the COVID phase through 3 years, which will show how deadly this virus was and the number of casualties it has caused. This dashboard helps people track the spread of the virus in the most populated countries, understand how COVID is rapidly spreading all over the world, and take necessary precautions regarding that. Overall, this COVID dashboard depicts valuable information regarding the virus spread across the entire world.

We want our data dashboard to have a serious tone, as this virus was so contagious and deadly. Many people across the world have suffered a lot. This dashboard helps people to understand the seriousness of the Covid pandemic. We also showed the number of recovered people from the Corona Virus.

As our topic has a serious tone, we are representing our data dashboard with a red color, which represents deaths due to the Coronavirus, and an orange color, which represents the recovery and vaccination rate. The images in our dashboard depict the seriousness of the situation, and we added callouts in the bar graphs indicating which countries have the highest number of deaths and recovery rates.

**Conclusion**

While creating this data Covid-19 dashboard, we learned how to collect the data from various sources, analyze the collected data, find trends in the data, and then visualize the data with real-time graphs. In addition, the dashboard design is a more creative and interesting skill that we learned while designing our Covid-19 dashboards. This is an important phase because we have shown effective visualizations in our dashboard in a way that suits the requirements of the audience watching it. It is an experience for us to improve our data management and analysis skills in this way.

We are interested to develop our skills in data analysis using programs like Excel, Python, and R programming, where we will understand how to operate with a significant dataset and how to evaluate it more accurately. Python and R Programming languages make data analysis faster and more precise. There are a lot of data visualization tools in which Tableau is the one software that we want to work with in the future, it helps to make data visualization easier. Furthermore, we are interested to work with larger datasets for the implementation of data visualization with Python and R programming.