# ANALYSIS OF COVID CASES IN DIFFERENT CONTINENTS

**ABSTRACT**

In this study, I will be analyzing the Covid-19 data that I obtained from the public data sources and will try to observe the trends in the data and what story it hides for us so that the same could be used by the researchers and medical practitioners to combat or control its spread in an effective way. I will examine various aspects related to COVID-19 data like total confirmed cases, recovery rates, total deaths per time-bound units by carrying out various visualizations techniques on the given data.

**INTRODUCTION**

Since the covid-19 that outburst in Dec, 2019 in China that has been declared as pandemic by WHO, its study has become very important to curb its chances to affect the life on earth adversely because there is no pre-dominant vaccine or cure to help us acquire the first line of defense against it. However, more efforts need to be made pertaining to its control.[1]

The data sets that I have worked on has the data between the range Jan, 2020 to June, 2022 obtained from the link {https://research.google/tools/datasets/covid-19-open-data/} and has 14 columns or features, the important ones that I have used in my analysis are:

- **Confirmed:** These specify the total number of people who tested positive in a particular country between 2020 and 2022.
- **Recovered:** This is the count of people who recovered from Covid-19 with respect to certain region in the given date range.
- **Active:** This number would give the total number of active cases in a particular region, given by total confirmed case minus the total recoveries.
- **Deaths**: It signifies the total number of deaths over a period of two years in a country.

Also, we have fields like **Country, Latitude, longitude** and **Date column** to which the data is mapped with regards to the records of other fields.

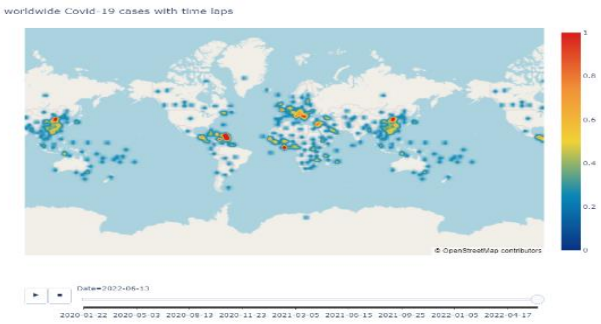
Next, I checked the data in case of any inconsistencies, missing values etc. that was not seen in the data sets that I selected and then visualized the same in the form of many graphs explained in the analysis section.

**ANALYSIS**

The various interactive plots used in the analysis of Covid-19 data are as follows:

**1) Case density animation on world map:**

The said graph can be rendered as shown below and has been achieved by using a mapbox function.




Graph 1- Case Density Animation on world map

I chose this particular graph to understand the general influence of Covid- 19 over various regions by plotting the confirmed cases, recovered cases and deaths in the subsequent world map plot within the data range of 2020 to 2022 with a time-lapse aspect to visualize the data in a better way. Color sizing is used to highlight the region with more intensity in case of more confirmed, recovered and deaths found in that particular region.[2]

As seen from the graph, it is evident that US tops the list of more confirmed cases followed by India and Brazil.

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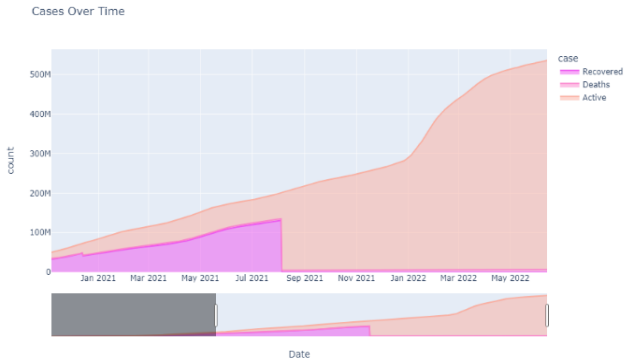
**2) Cases Over the Time with Area Plot:**

The graph obtained by using a function "area" shown below as:

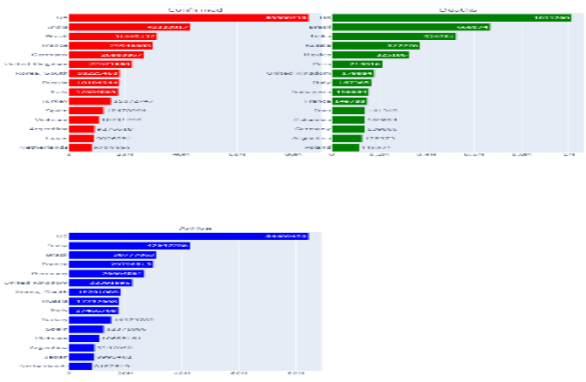



Graph 2 - Stacked Area Plot

This Graph has been chosen to illustrate the active cases present in particular time frame against the number of recovered and death cases. This gives an idea of strength of recoveries in a particular area in a particular time and the strategies can be built to study the precautions or medications adapted by the people with more recovery rates.

**3) Top 15 Countries Case Analysis:**

As shown in the graph below, I tried to compare the number of deaths, confirmed and active cases across various countries and this can be achieved using a bar plot. As clear from the figure, US has been the top contributor in confirmed, active and death cases followed by India and Brazil while Netherlands in the lowest ranks.



Graph 3 – Bar chart

**CONCLUSION**

From the above study, we can conclude that Covid-19 has definitely showed trends in terms of its dormant and active phases. As seen the total cases increased in the mid 2022 while the cases stayed lower in the first quarter marking the phase of mutation of the VIRUS to develop itself and hit stronger the next time. We have been able to create a vaccine to fight its effect on human body, however we'd want to remain one step ahead with its each mutation and stay cautious till we find the permanent vaccine of it. This simple illustration or analysis showed how the Virus has spread across the globe from time to time in each region taking into consideration the confirmed cases, recoveries and the active ones but more analysis is required to incorporate various other factors like symptoms specific to Covid, drug effectiveness in trailing days to be able to sustain and overcome the wrath of COVID-19.

**REFERENCES**


1. https://ieeexplore.ieee.org/document/9373130
2. https://www.researchgate.net/publication/340793227_Data_Visualization_and_Analyzation_of_COVID-19