# Covid 19 Data Visualization

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**ABSTRACT**

The COVID-19 pandemic, also known as the corona-virus pandemic, is an ongoing pandemic of corona-virus 2019 caused by severe acute respiratory syndrome corona-virus 2 (SARS-CoV-2) [3]. This project is an effort to efficiently provide visualization of how this pandemic progressed across the world.

**Keywords**: Corona-virus disease 2019 (COVID-19), Centers for Disease Control and Prevention (CDC)

## 1 INTRODUCTION

The World Health Organization declared the outbreak a Public Health Emergency of International Concern in January 2020 and a pandemic in March 2020. As of December 14 2020, more than 72.2 million cases have been confirmed, with more than 1.61 million deaths attributed to COVID-19.

I used tableau software [2] for the visualization purposes. Both the tableau workbook and PDF format of the workbook are provided in this project report.

This project is divided to 4 parts. All parts are designed around the concept of change in pandemic spread over the period of time. Since this data-set has data from 2020, 22/01 to 2020, 04/06 [1]. We visualize the data during this time frame. Initial we begin with a dashboard that summarizes rest of the project in a single worksheet. This dashboard depicts the change in pandemic over the period of time in all the other worksheets Confirmed Cases, Confirmed deaths in a line chart and a bar chart.

## 2 THEORY

COVID-19 is one the deadliest viruses we have seen in recent times. It has a dead-toll that no other incident or an accident have accounted for so far. In this project I would like to present how the pandemic spread across the world over a period of six months.

### 2.1 Dashboard

The dashboard is a representation of how the spread of COVID 19 across the time span of 6 months (– 22/01 ~ 04/06). To the left of the depicted dashboard the red dots denotes the cases of those particular Geo-location, and the right side denotes a time line, confirmed death and confirmed cases across Geo-locations with respect to the time, and confirmed deaths and confirmed cases volume across time line.

### 2.2 Worksheets

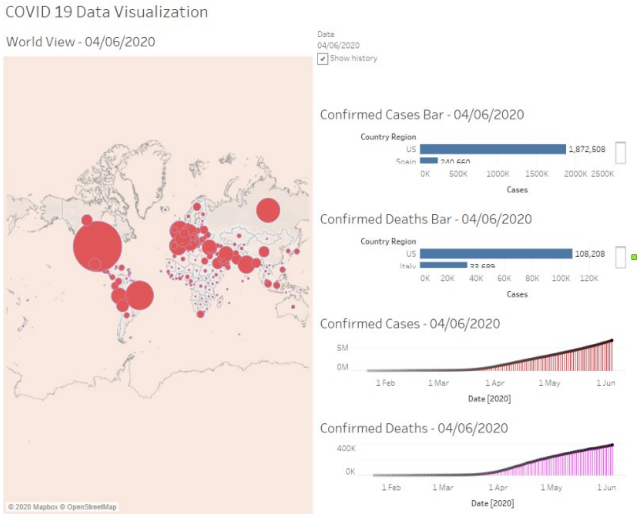
In the Worksheets using tableau software, I depict the increase in the number of COVID-19 confirmed cases and COVID-19 confirmed deaths. The settings and the behavior of the worksheets are similar that of dashboard. To understand how same data can be visualized with different visual formats, I listed the data in a line curve and as a bar chart. In case of line charts, data is presented with the number confirmed cases/deaths (y-axis) with the duration in months from January till June.

## 3 DISCUSSION ON VISUALIZATION FLOW

In order to efficiently show the data visualization process of the pandemic spread, I used tableau software. Using this software I used a wizard called Date with “Loop playback” that will showcase the data variations over a period of time and loops back.

### 3.1 Dashboard

As explained earlier in dashboard gives a overall view of the project. Once the Loop playback is triggered, we can observe how the data changes i.e how the number of cases increase around the

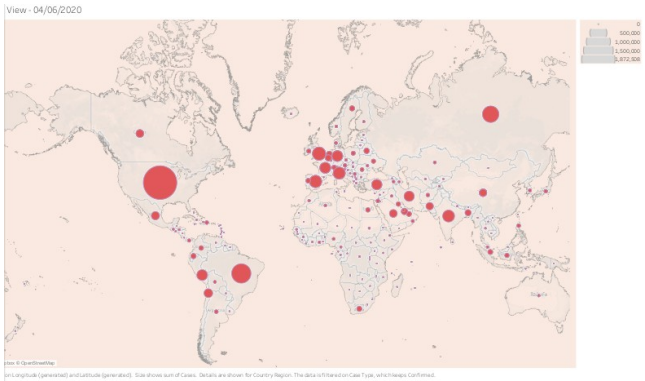



globe as a function of time. We notice that USA is leading in these cases. Confirmed deaths/cases Bar charted can be sorted depending on the requirements.

### 3.2 Worksheets

This section gives a brief explanation of the worksheets and how they are generated using tableau software.

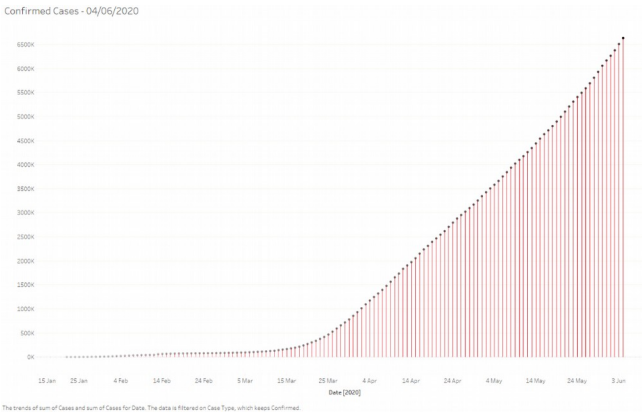
#### 3.2.1 World View of the COVID-19 Cases



In this section we present the increase of COVID-19 confirmed cases and deaths in all the countries. We notice that the size of the bubble increase over a period of time in USA and it decreases in South Korea over a period of time.

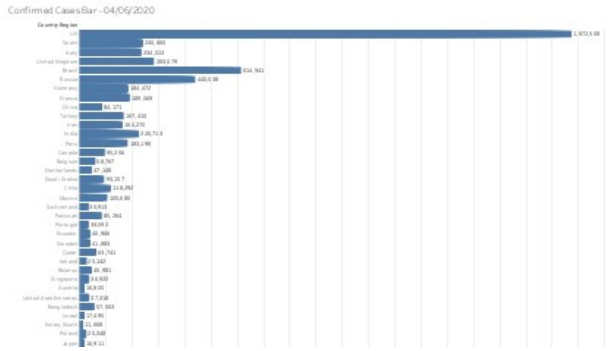
### 3.2.2 Confirmed Cases: Line Graph

The this worksheet in COVID 19 data visualization is Confirmed Cases Bar which reflects the amount of confirmed cases recorded at a any given country across the time line. The bar can be sorted with respect to the name or with the amount of cases registered.

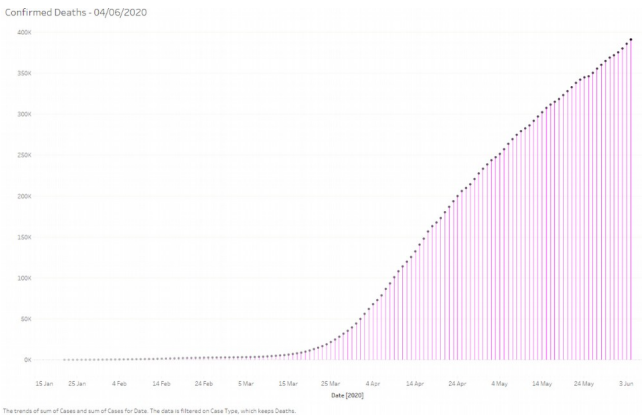



### 3.2.3 Confirmed Cases: Bar Chart

In this worksheet, I tried to depict the number of confirmed cases count for each country over a period of time. As you know notice below the count of USA increase substantially fast after a period of time.



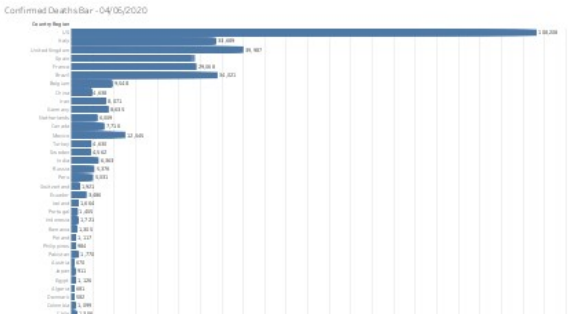

### 3.2.4 Confirmed Deaths: Line Graph




In this worksheet we explain the increase in the count of deaths in different countries all over the world. As we can notice below the death count increases rapidly after March.

### 3.2.5 Confirmed Deaths: Bar Chart

This worksheet in COVID 19 data visualization is confirmed death cases bar chart which reflects the amount of confirmed deaths recorded at a any given country across the time line. The bar can be sorted with respect to the name or with the amount of deaths registered. As we can notice that unfortunately United States of America is leading in the number of confirmed cases and number of confirmed death cases.




## 4 Conclusion

In conclusion, there are many ways to represent and visualize a data. In this project I used tableau to efficiently showcase the data visualization of COVID-19 confirmed cases and confirmed deaths. There are many other such software and tools that can visualize data much better. Methods for 2D and 3D scientific visualization increasingly incorporated computer graphics as the disciple matured, with vector fields and scalar fields from measured data and computer simulation being on of the the main applications.

## References


[1] COVID-19 Activity data set "https://data.world/covid-19-data-resource-hub/covid-19-case-counts"

[2] Tableau Software Home page "https://public.tableau.com/en-us/s/"

[3] COVID-19 Pandemic "https://en.wikipedia.org/wiki/COVID-19_pandemic"