

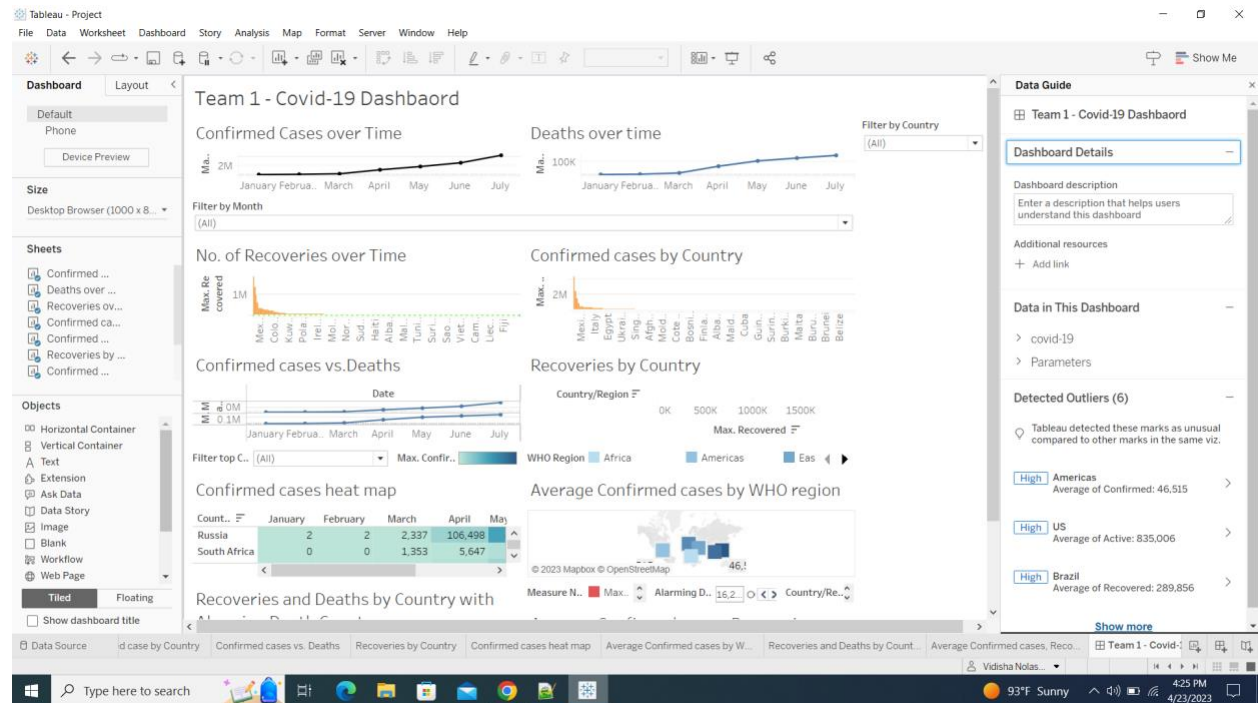
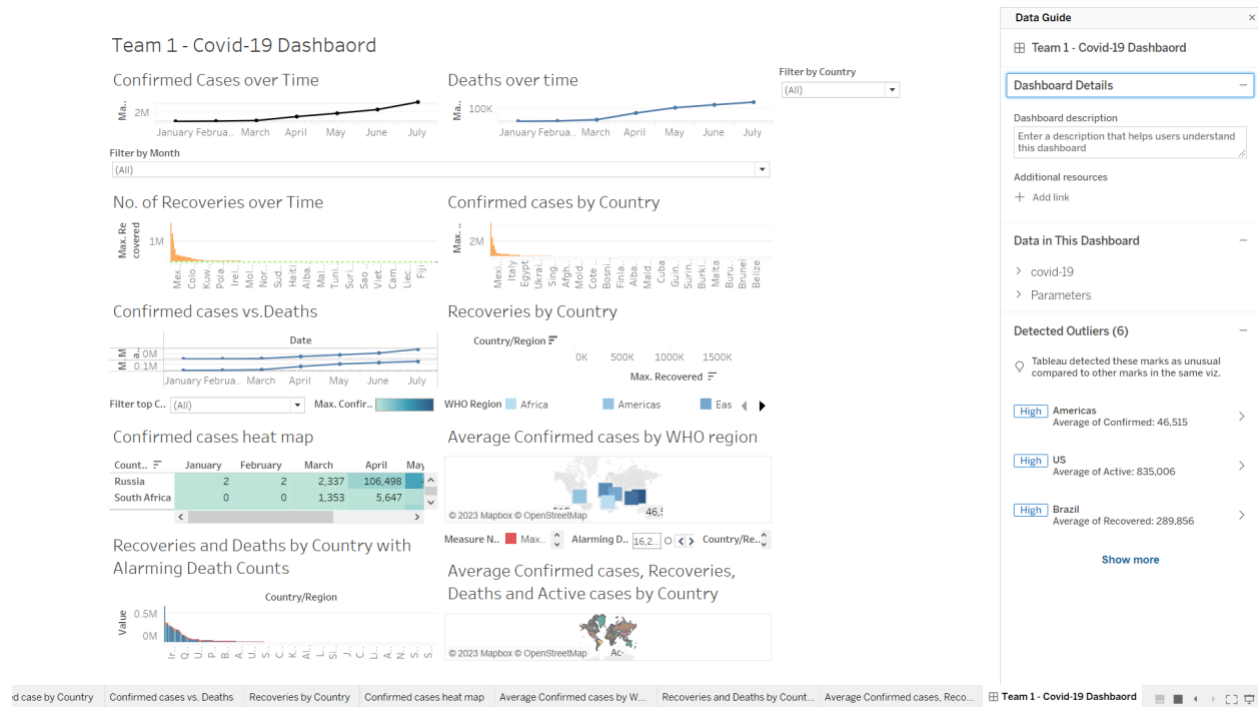
IFT 598: Data Visualization & Reporting for IT

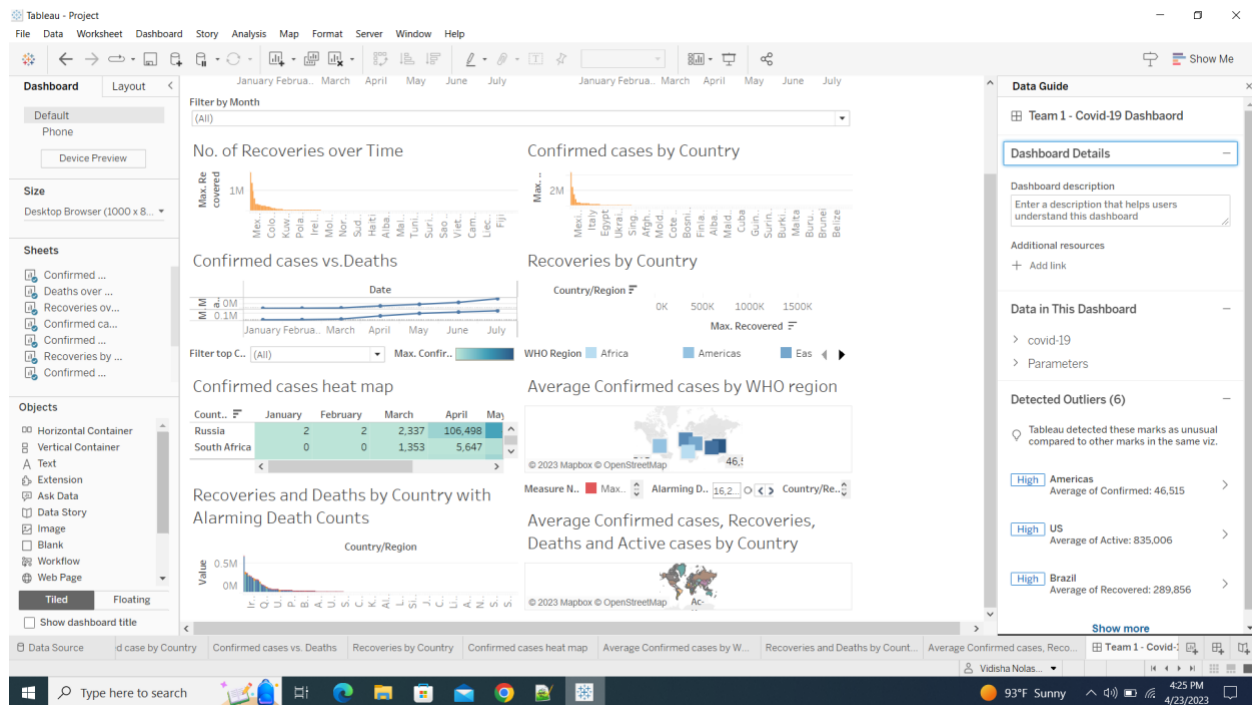
Project: Tableau Covid-19 Dashboard

This is more of a Hobby of mine. Making something useful out of unstructured data. Happy

Clients ensure a Happy Company. Have a look.

## Section 1: The Dashboard





A COVID-19 dashboard in Tableau with 10 plots which we have created to answer certain questions/ concerns regarding the status of COVID-19 can be used to monitor and understand the impact of the pandemic. The dashboard provides a visual representation of key metrics related to the pandemic, which can help identify trends, hotspots, and areas of concern. Some of the specific use cases for the dashboard are:

**Public health monitoring:** Public health officials can use the dashboard to monitor the spread of the virus, identify areas of high transmission, and allocate resources accordingly.

**Policy decisions:** Government officials can use the dashboard to inform policy decisions related to reopening, restrictions, and vaccination efforts.

**Business planning:** Businesses can use the dashboard to monitor the impact of the pandemic on their operations, assess the risk of outbreaks in different locations, and plan for contingencies.

**Community awareness:** The dashboard can be made publicly available to help increase awareness and understanding of the pandemic in the community.

Overall, the dashboard can be a valuable tool for understanding and responding to the pandemic and can help inform decision-making at the local, regional, and national levels.

## **Section 2: The Dataset**

### **About the Dataset and its attributes**

The COVID-19 dataset is a comprehensive source of information about the global pandemic caused by the SARS-CoV-2 virus. It includes data points on the cumulative count of confirmed, death and recovered cases from different countries between 22nd January 2020 to 22nd July 2020. Additionally, it provides latitude and longitude information for locations with their respective number of cases, number of countries, and WHO regions. However, before we can begin visualizing the data, we need to perform some preprocessing techniques to ensure that our analysis is accurate.

### **Data Preprocessing techniques used:**

- **Removing missing values:** We will begin by removing all null values in the dataset, calculating the total number of missing values for each column, and dropping those columns or rows with a significant number of missing values.
- **Feature Selection:** Next, we will perform feature selection by dropping the attributes or columns that we won't be using for our visualizations. Specifically, we will drop the 'Province' attribute as it is useless to our analysis.
- **Adding a new Feature:** Finally, we will add a new feature to the dataset that displays the average number of confirmed cases, deaths, recoveries, and active cases for each WHO

region. This new attribute or column will be called 'WHO region-wise average'. This additional feature will provide us with more insight into the data and help us identify trends and patterns in each WHO region.

By performing these data preprocessing techniques, we can ensure that our visualizations are accurate and provide valuable insights into the COVID-19 pandemic.

### **Section 3: Dashboard users**

- **Government** – The Government will use this dataset to track the covid statistics across various parts of the country, or over the world.
- **Vaccination certificate users** – The vaccine manufacturers can use the stats from the dataset to decide where they need to increase the distribution of vaccines based on the number of COVID cases.
- **Public organizations** – People from the audience or organizations can get general info about the COVID cases to stay updated.
- **Media/news channels** – Based on the updated dataset, the media can show trends/ stats and whether they are increasing or decreasing in the dataset.
- **Medical organizations** – Regions with higher COVID cases are given higher priority, and medical organizations use this info to provide more vaccines/ medicines in the area.

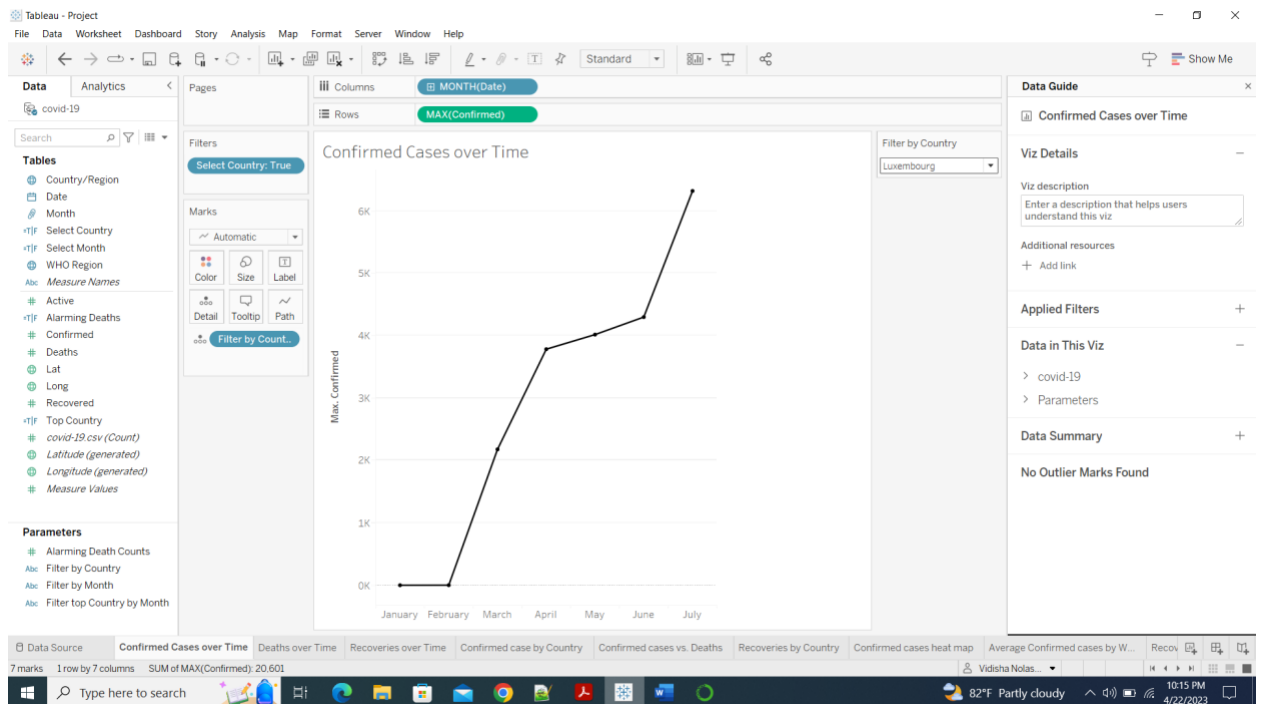
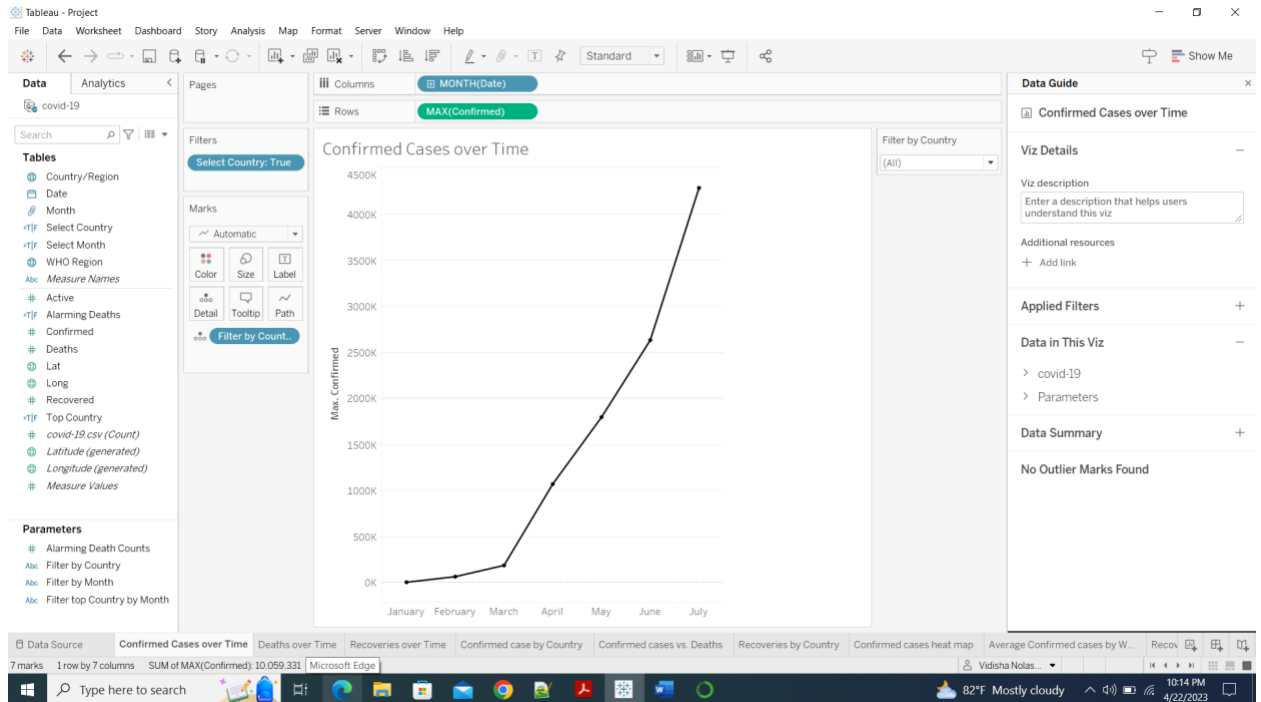
## Section 4: Questions

**Below we have the list of questions that the dashboard will answer**

1. Confirmed cases in the previous week?
2. Analysis of death rates every month?
3. Which country had the highest rate of recovery?
4. Latest number of confirmed cases?
5. Analysis of nations with the 10 most cases and deaths?
6. Are there any notable differences in the COVID-19 data between countries with different healthcare systems or policy responses? – Based on the recovery count, we will be able to tell the difference between countries having good healthcare systems
7. Can the data in this dataset be used to predict or forecast the spread of COVID-19 in different regions or countries? – The current trend from the plot can help predict future trends.
8. What insights can be gained from visualizing the data in this dataset, and what types of visualizations are most effective? – We can figure out the total count (Confirmed, Deaths, Recovered, and Active) concerning each WHO region.
9. Are there any correlations or patterns between the COVID-19 data and demographic or economic indicators in this dataset?
10. Are there any lessons or best practices that can be learned from countries that have successfully managed to control the spread of COVID-19? – Looking at the trends, we can tell which countries have been successfully able to manage the spread of the virus, and based on that information, we can draw conclusions.

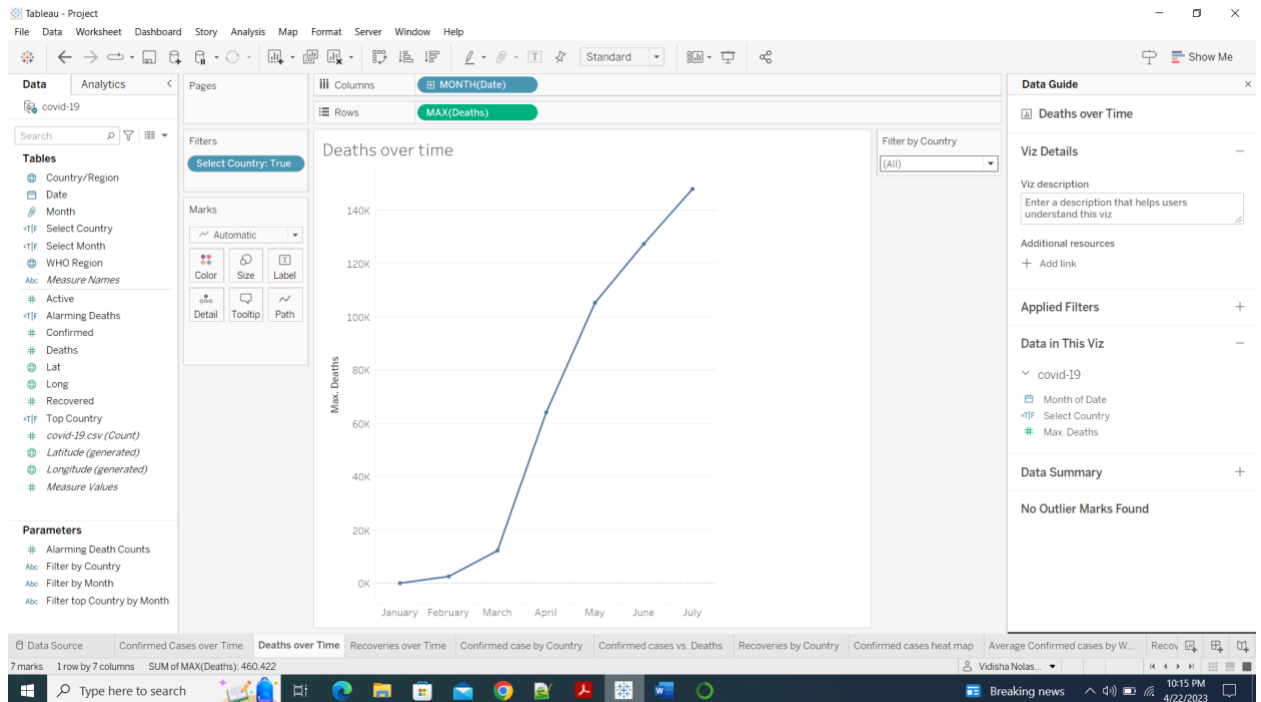
## Section 5: Plots

### 1. Line chart of confirmed cases over time –

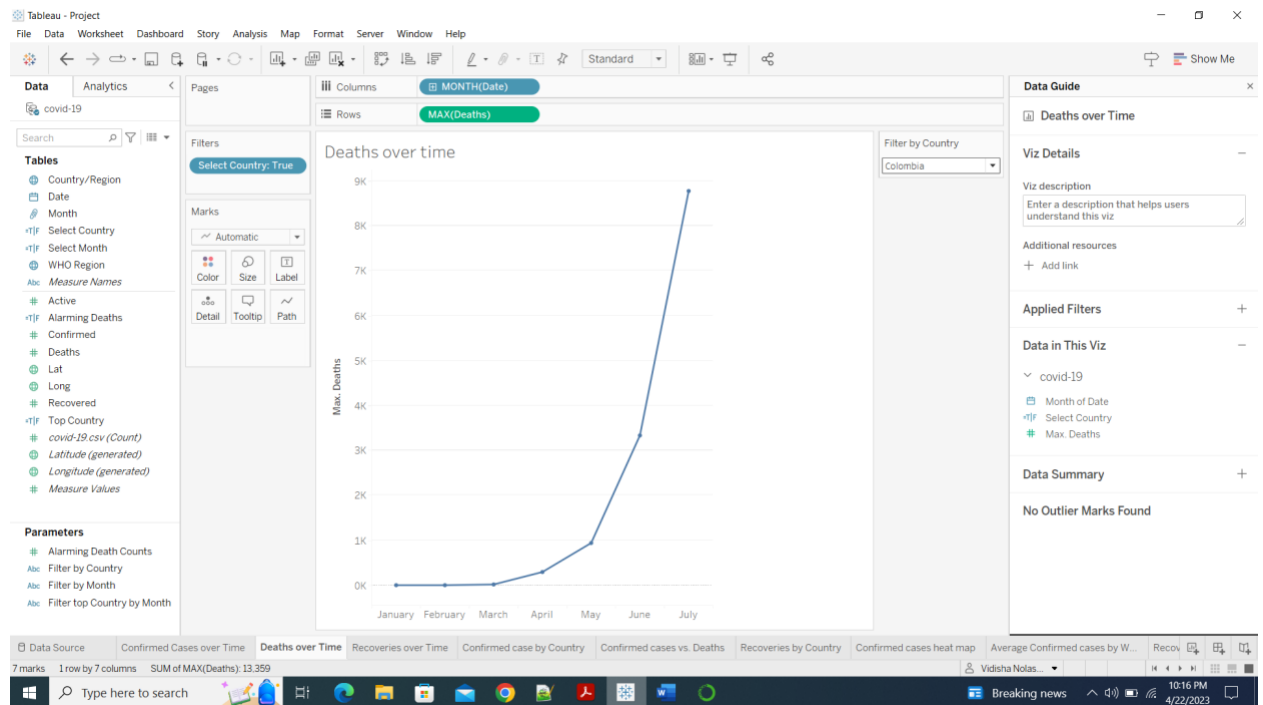


A line chart with confirmed cases over time will tell us about each month'. We can filter the chart by country. Length, Color, and Width are the pre-attentive attributes for this plot. Black color is used for the line chart.

## 2. Line chart of deaths over time –



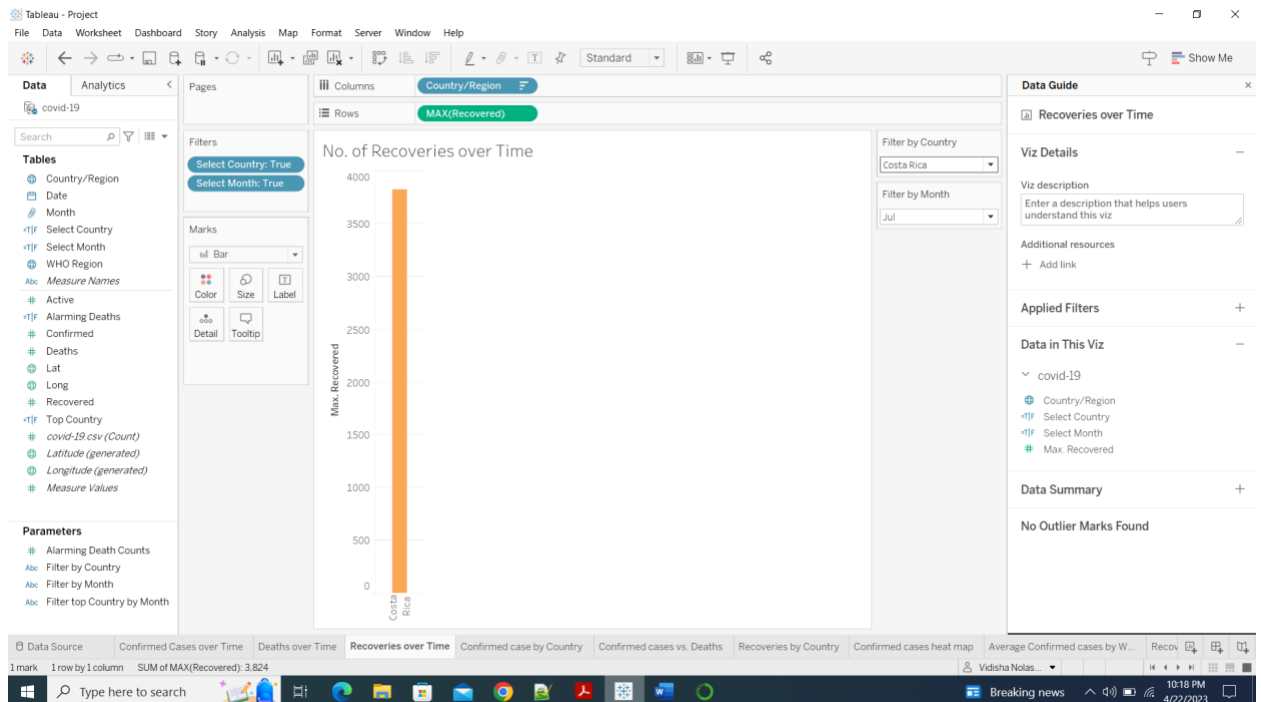
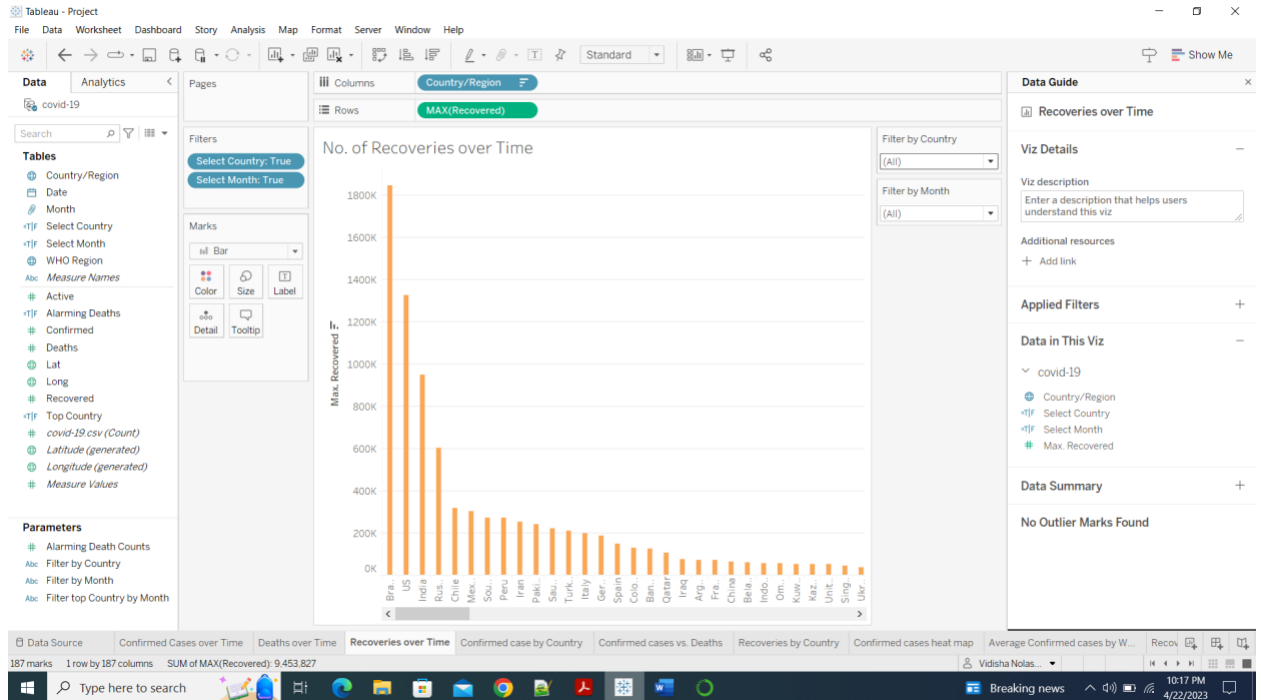




A line chart with deaths over some time will help us in the analysis of death rates every month by displaying the death toll for each month. We can filter the chart by country.

The pre-attentive attributes for this plot are Length, Color, and Width. The trend line is Blue.

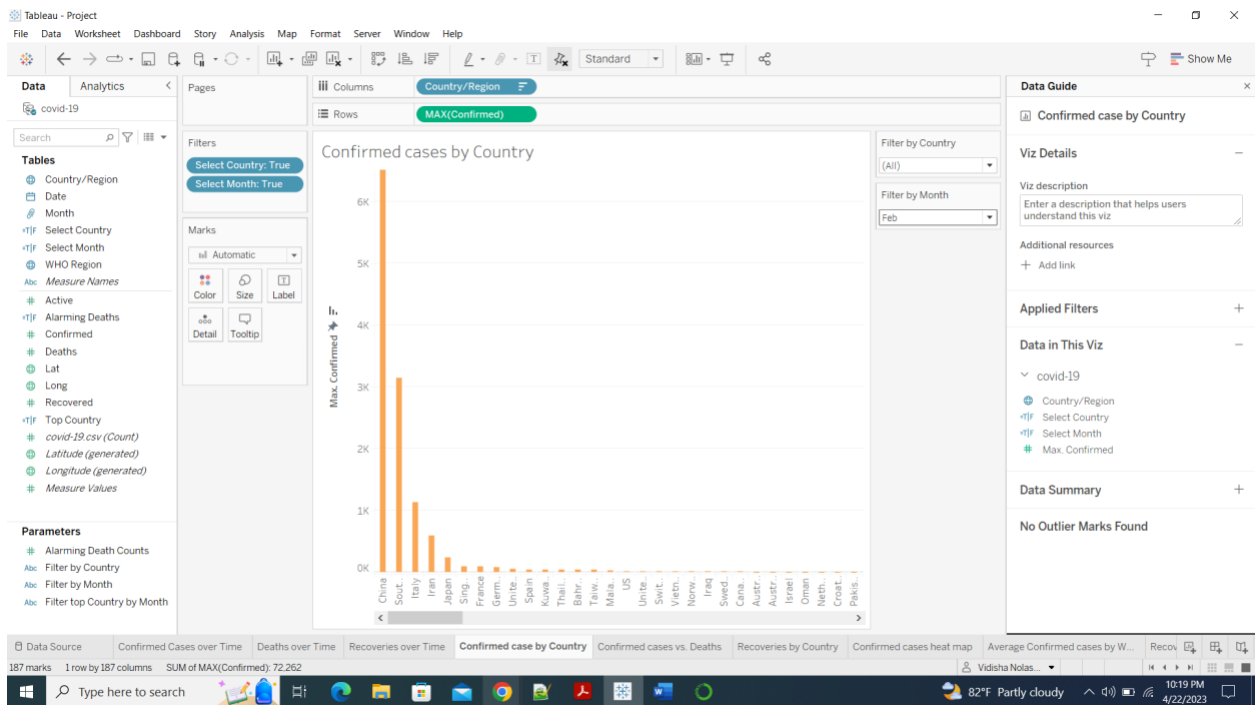
### 3. Bar chart of No. of recoveries over time for different countries –

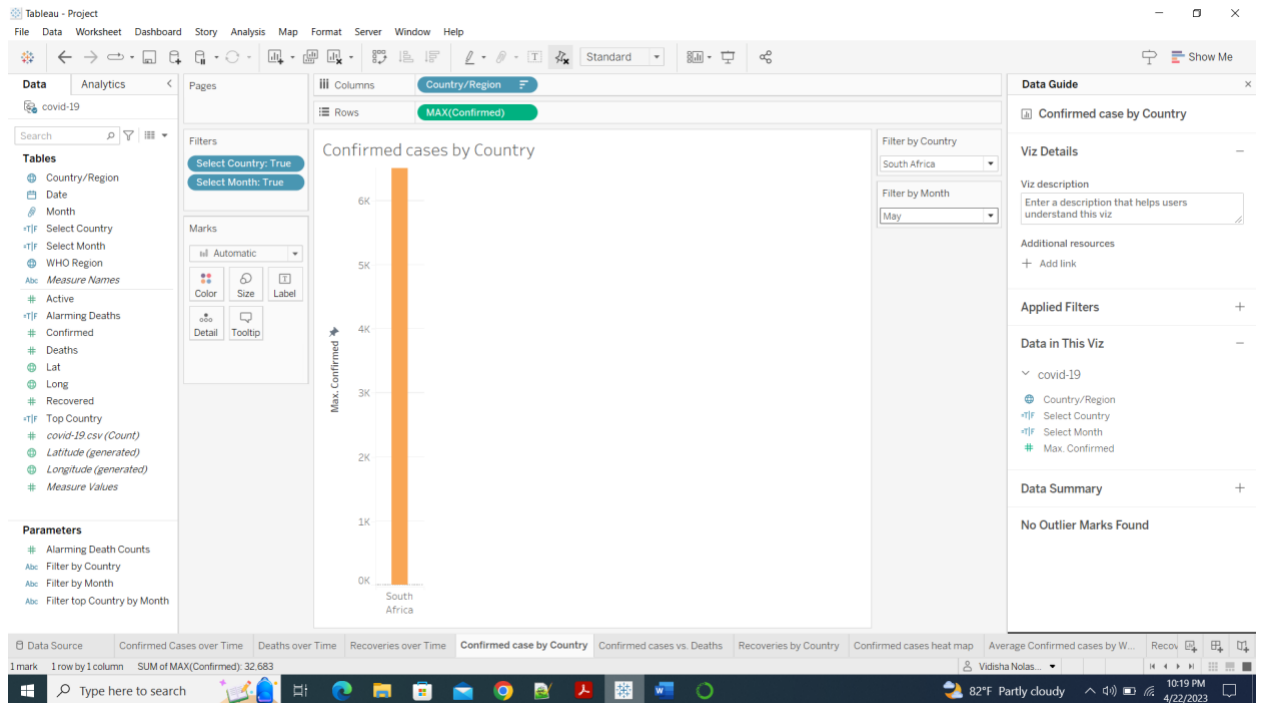


This bar chart will tell us which country had the highest number of recoveries for each

month. The pre-attentive attributes here are Length, Color, and Width, we have added an interactivity for filter by country and filter by month. The bars in the bar chart are orange.

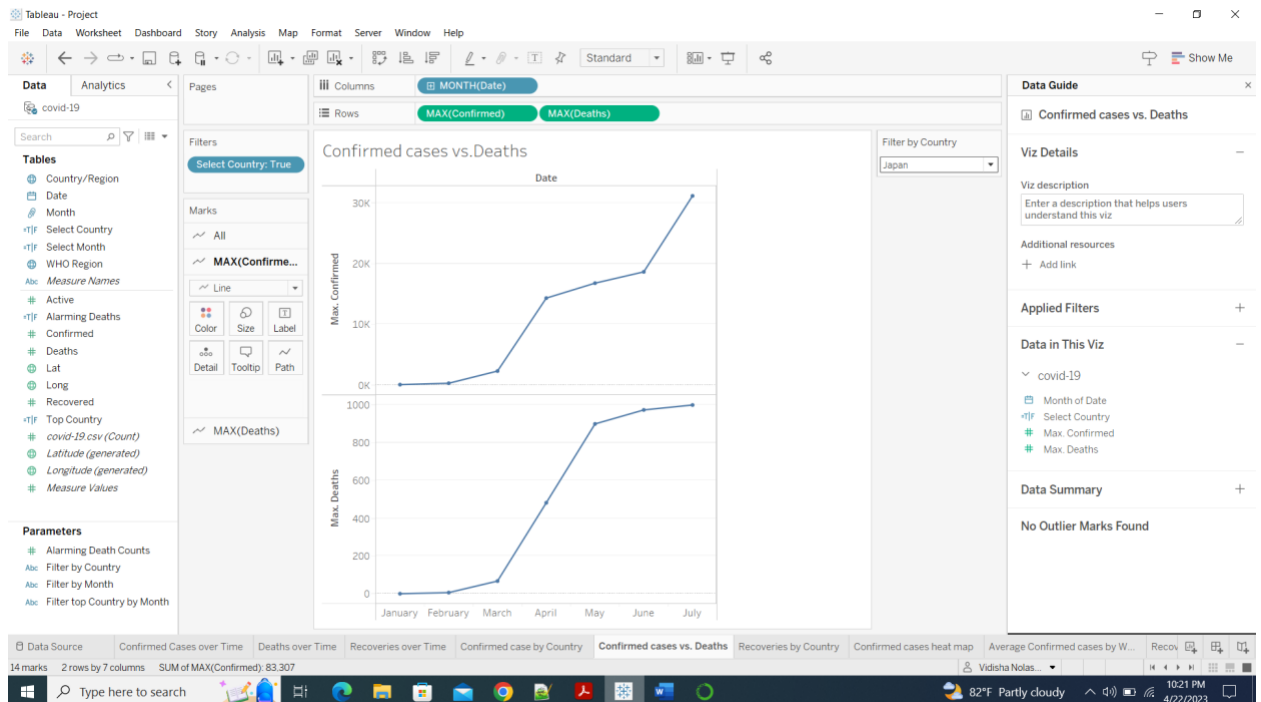
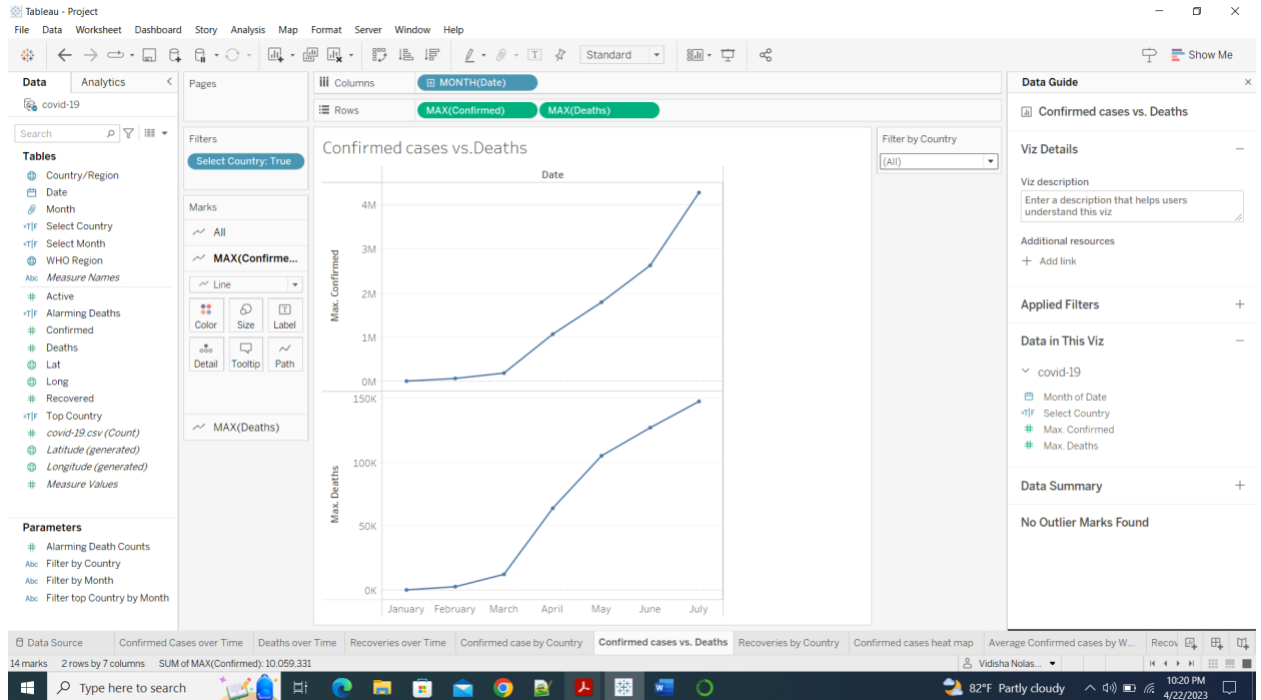
#### 4. Bar chart of confirmed cases by country –





This bar chart will provide us with information on the latest number of confirmed cases for each country as we have country-wise data points in our dataset. We can filter by country and by month. Length and Color are the pre-attentive attributes used for this plot. We have used orange color for the bars.

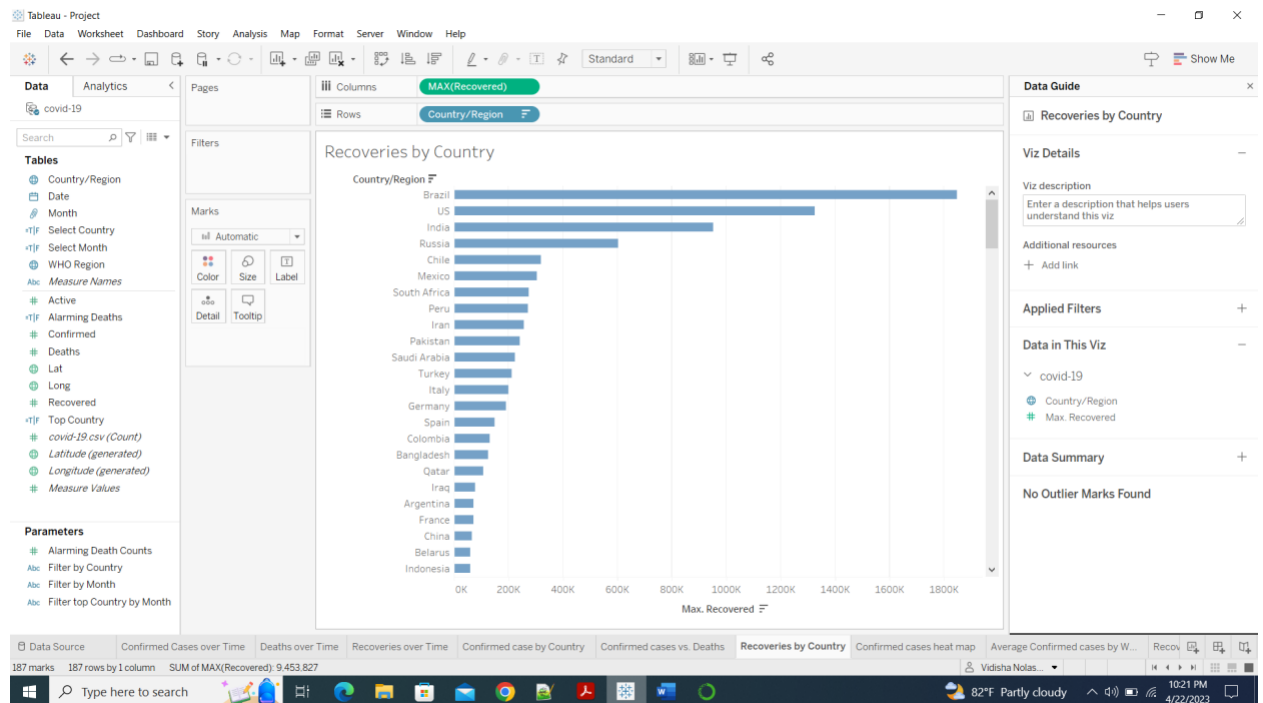
## 5. Line chart of confirmed cases vs deaths –



A line chart of confirmed cases vs deaths will provide us insights into the analysis of nations with the 10 most cases and deaths. Color, Size, and Shape are the pre-attentive

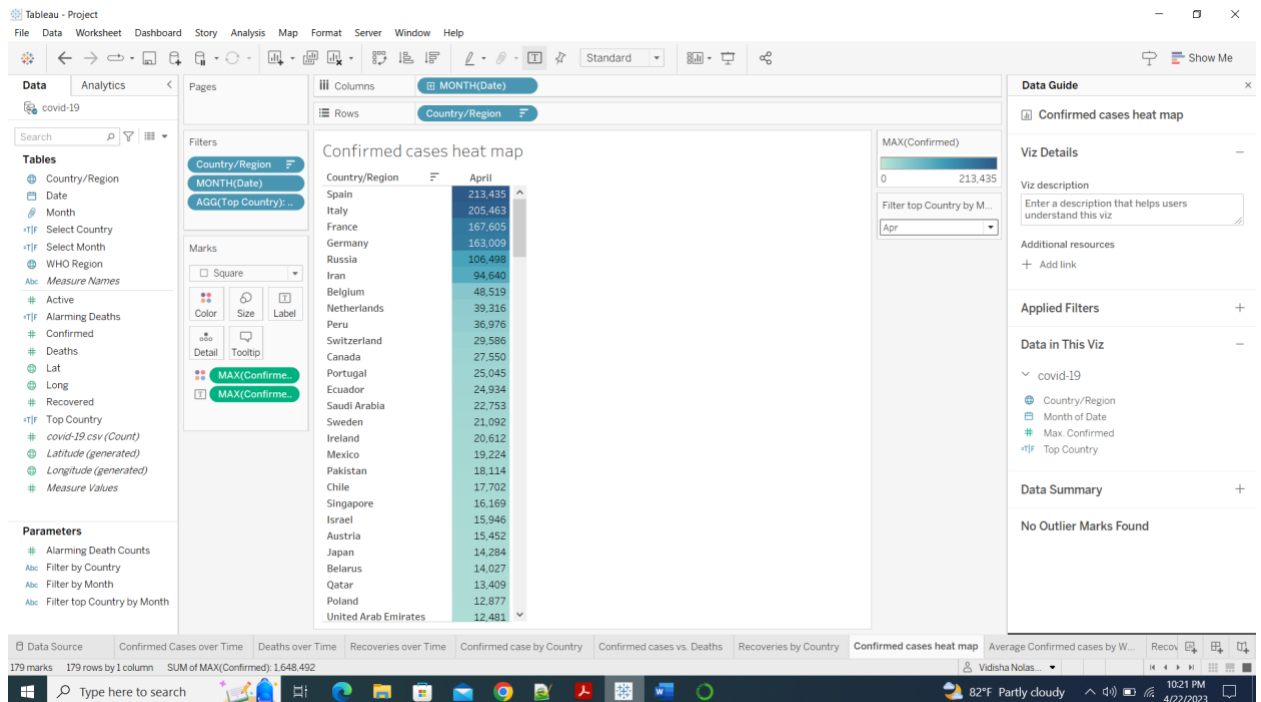
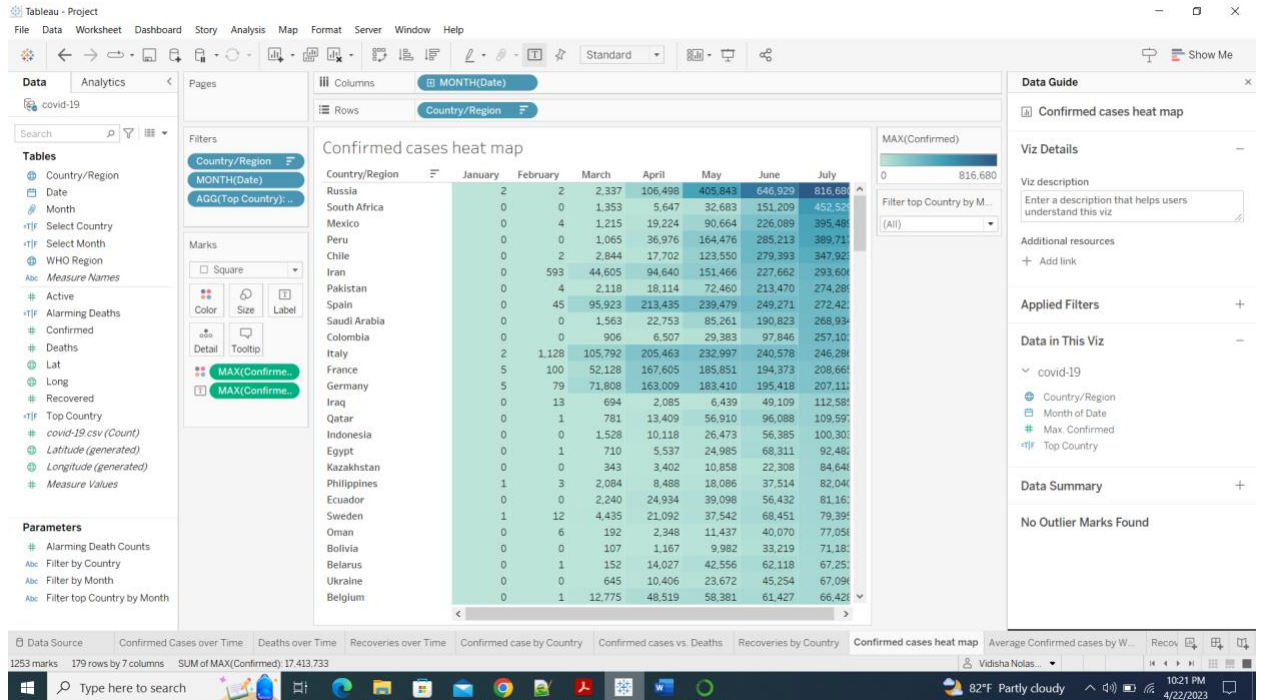
attributes used for this plot, we have added a filter by country interactivity filter. We have used blue color for the line chart.

## 6. Bar chart of recoveries by country –



A bar chart of recoveries country-wise will tell us if there are any notable differences in the data between countries with different healthcare systems. Color, Length, and Width are the pre-attentive attributes used here. We have used blue color for the horizontal bar chart.

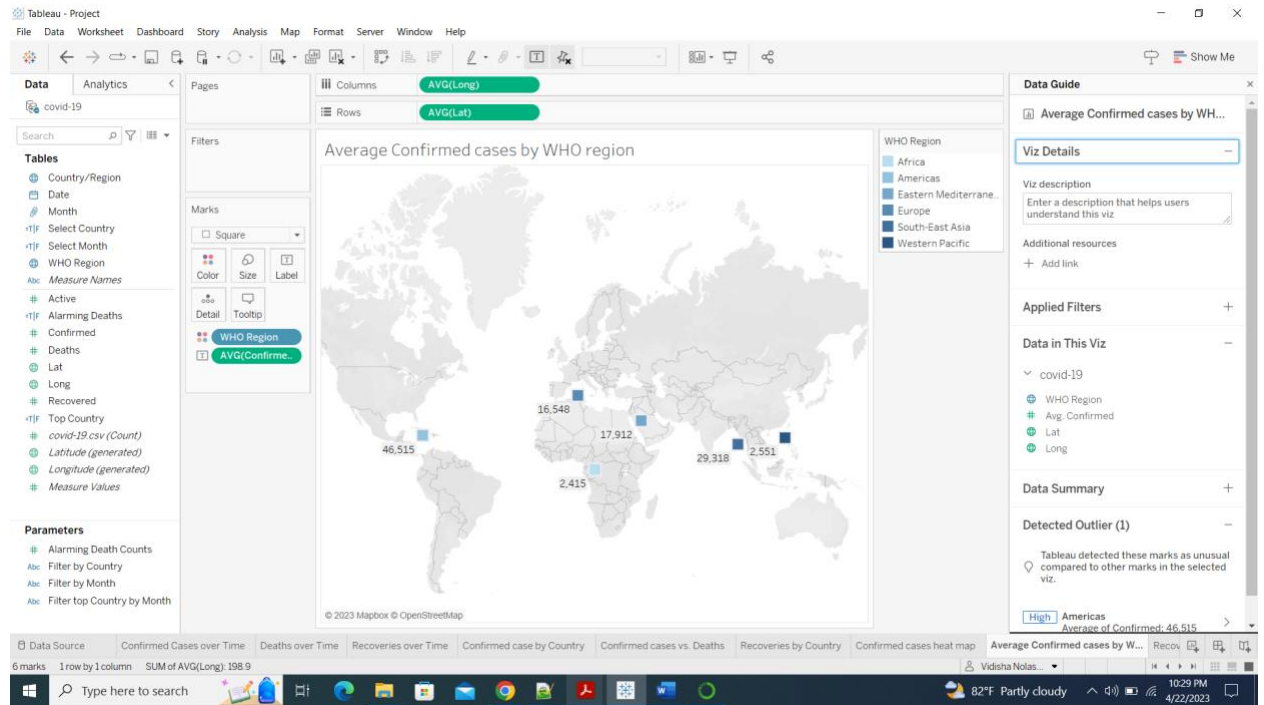
## 7. Heat map of confirmed cases by Country & Date –



A heat map of confirmed cases by country over time can be used to predict or forecast the spread of COVID-19 in different regions or countries by visualizing the magnitude of the

present-day. The pre-attentive attributes for this map are Color and Size. We have used the blue-teal color palette for this plot. We can filter the heat map by country.

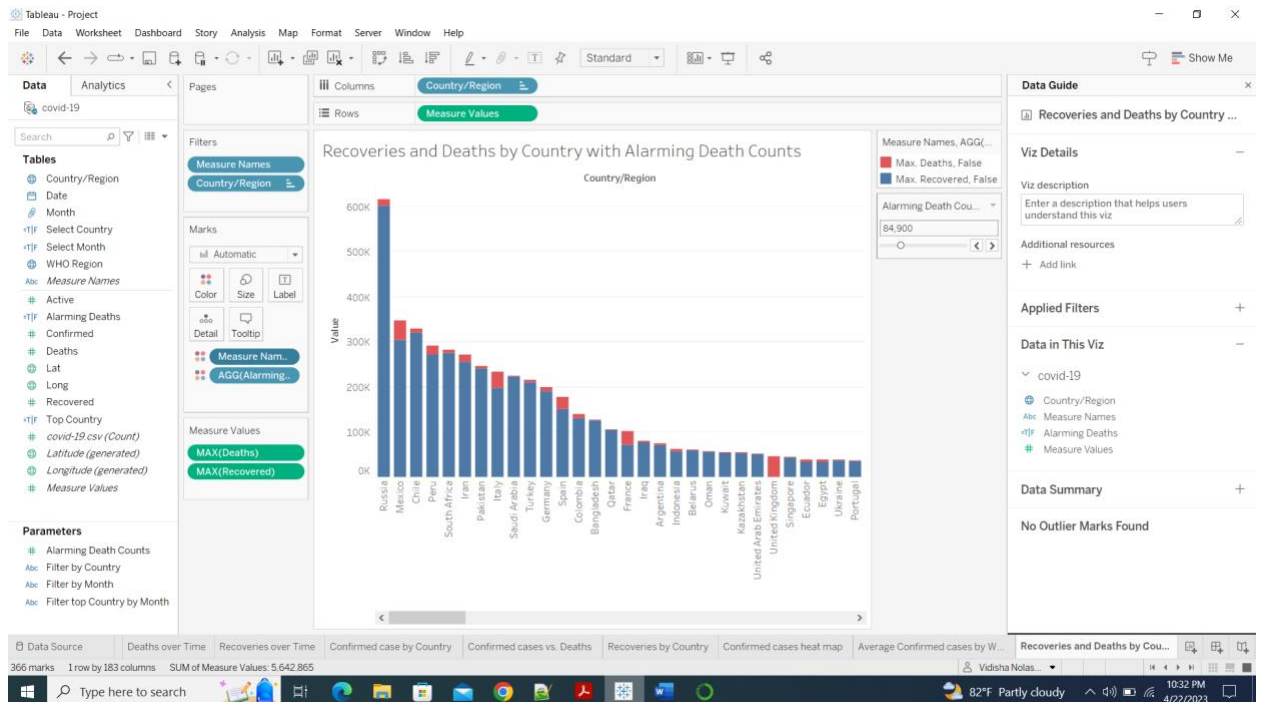
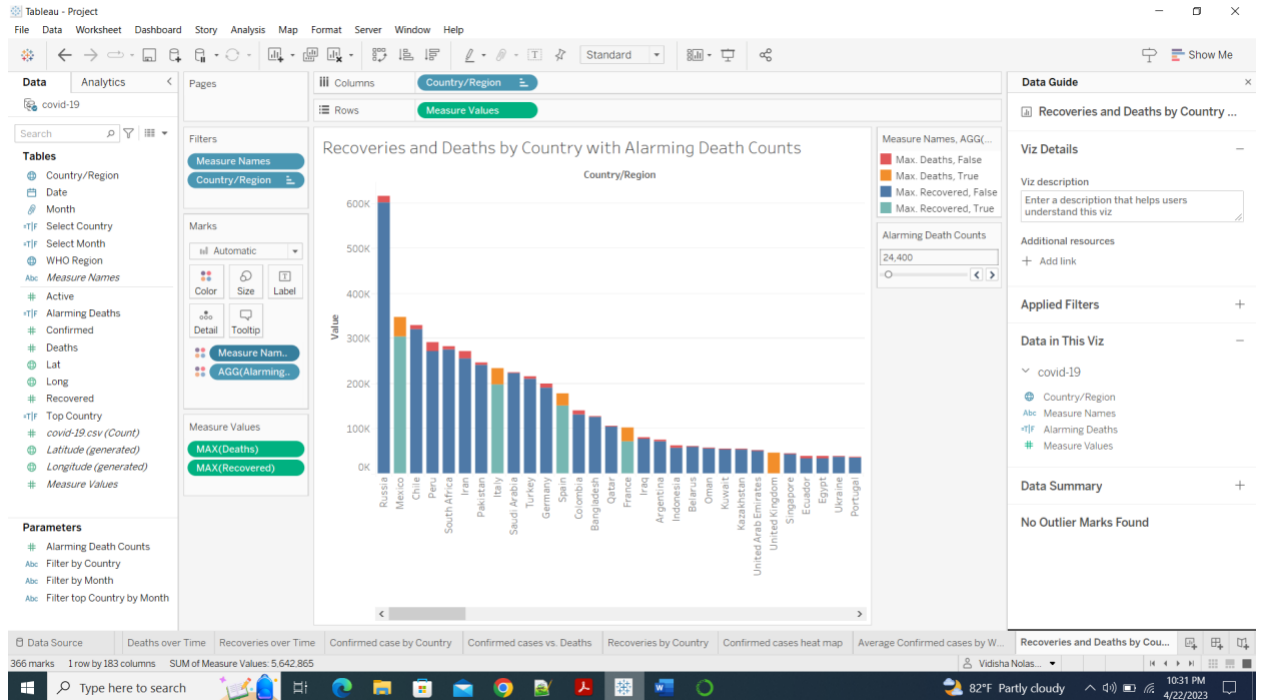
## 8. Choropleth map of average cases by WHO region –



A choropleth map will provide information on the total average count of Confirmed cases per WHO region. We can figure out which region has the highest average count. Color is the pre-attentive attribute for this map. We have used the blue palette with increasing hue intensity for different WHO regions.



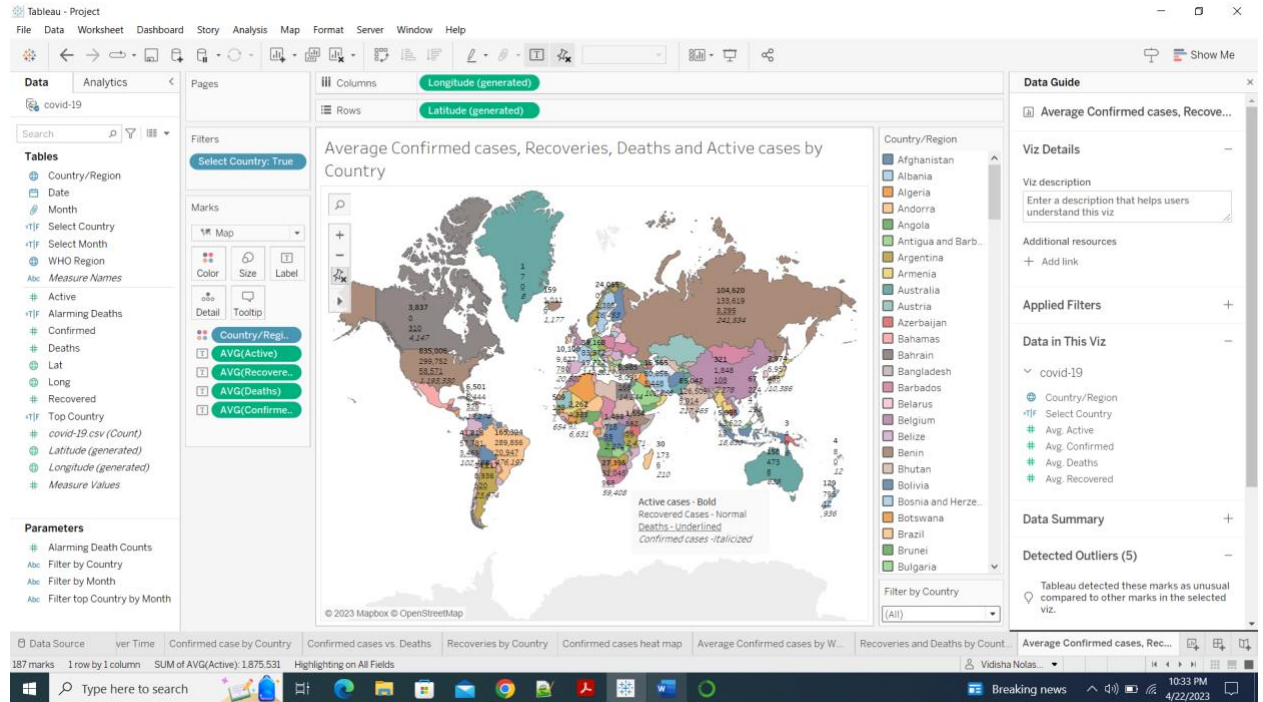
## 9. Bar chart of recoveries and death by countries –

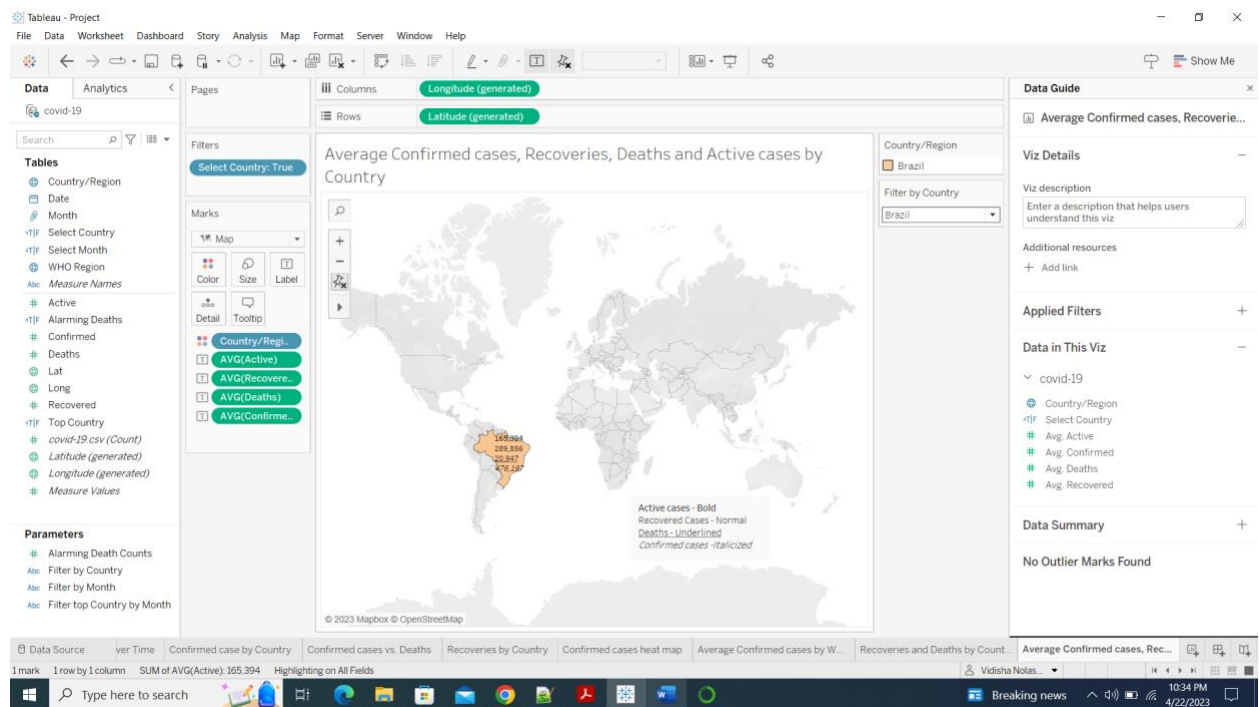


This bar chart will help us to find correlations or patterns between the COVID-19 data and demographic indicators in the dataset. With an interactive reference line for the

alarming death threshold, we can conclude the demography. The pre-attentive attributes are Color, Length, and Width. We have used blue, teal, orange, and red for the bars.

10. Geo map showing confirmed cases, recoveries, deaths, and active cases for each country -





The geo map can provide useful insights into the practices that are being followed by the countries that have been able to successfully manage the spread of the virus. The lesser the number of confirmed cases for a country, the better the management. We can filter the map by country. It shows us the average number of active cases, recoveries, deaths, and confirmed cases for each country. The legend on the map tells us which number represents what. The pre-attentive attributes are Color and Shape. We have used Tableau Classic 20 Palette for this plot.

## Section 6: interactivity filters used in our visualization

- **WHO region filter** – This filter will be a drop-down list of WHO regions to show the average number of cases for a particular region. This will be used for the choropleth map.
- **Interactive reference lines** – The interactive reference lines will indicate a decent number of recoveries and an alarming number of deaths threshold where these numbers can be controlled with a slider (filter). They will be used in the bar chart of recoveries and deaths by country.
- **Country filter** – A drop-down list of countries filter to display the total count of cases (Confirmed, Deaths, Recovered, Active) for each country. It will be loaded from the country attribute in the dataset. This filter will be used for the plots where we are displaying country-wise data. Bar chart of confirmed cases and bar chart of recoveries by country will use this filter and these plots will be linked to each other. A line chart of confirmed cases over time can also use the country filter to show the trend for any particular country spanning over seven months. Country filter will also be used in the Geo map to display data for a single country.
- **Month Filter** – The "Filter by Month" interactivity attribute is useful for analyzing COVID-19 time-series data by allowing you to filter by a specific month or range of

months. By selecting one or more months from a calendar view or dropdown list, you can track the progress of the pandemic and identify any patterns in the data.

**References:**

<https://app.mural.co/t/asu7870/m/asu7870/1680555734141/5d86ea77a37cac2d13b83524ba4d88117457bc1b?sender=uaeb24adad20e4310f8565491>

[https://www.kaggle.com/datasets/imdevskp/corona-virus-report?select=covid\\_19\\_clean\\_complete.csv](https://www.kaggle.com/datasets/imdevskp/corona-virus-report?select=covid_19_clean_complete.csv)