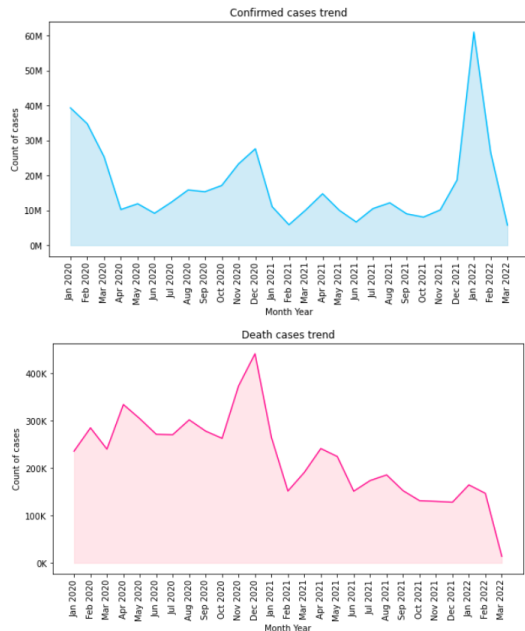


TIME SERIES ANALYSIS OF COVID19 DATA

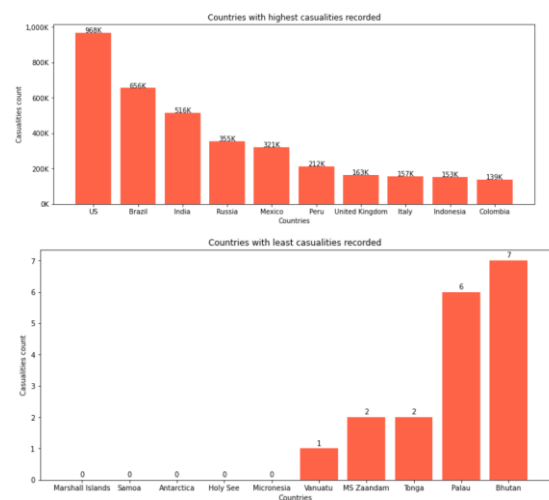
Brief about Data: 1. Obtained the time series data w.r.t confirmed cases, deaths and recoveries from a Git hub page maintained by John Hopkins University. 2. Vaccination data from WHO website. This data consists of cumulative count of cases day wise for different countries since Dec 2019. The vaccination data contains of the different types of vaccines and count of vaccines administered and the people fully vaccinated for different countries.

COVID19 Data Trends

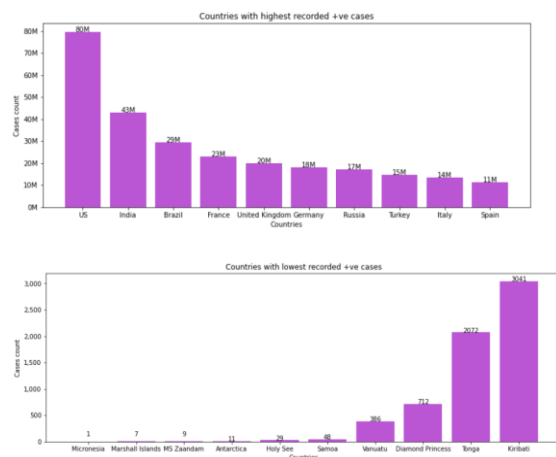


The number of cases in each month are plotted for the past 2 years, we observe that there is spike in the number of confirmed cases around Nov 2020, at the same time the deaths cases also spiked up. We notice another spike around Jan 2022, but the deaths have not increased in the same way as before, we may account this to multiple factors, like change in variants, or immunisation because of vaccination.

The United States has registered the maximum number of cases as well as deaths, India is in the second place for the same. The least cases are registered by Micronesia. Countries like Micronesia along with Marshall Islands, Samoa, Antarctica, Holy see have not registered any deaths so far.



If we look at the percentages, we see that the cases in US constitute 17.2% of the total cases. India accounts to 9.3%. One interesting observation is that the top 10 countries constitute around 60% of the total positive cases.



Vaccination Data Analysis:

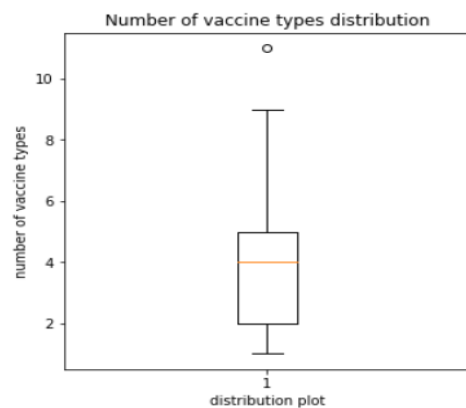
Vaccine against COVID19 was first administered in July 2022, in China, followed by Bahrain, Laos and so on.

	COUNTRY	FIRST_VACCINE_DATE
0	China	2020-07-22
1	Bahrain	2020-11-04
2	Lao People's Democratic Republic	2020-11-25
3	Canada	2020-12-14
4	United States of America	2020-12-14

Countries where vaccination started first

Various types of vaccines are available in the market and used throughout the world. If we look at the distribution of the number

of vaccine types, we see that most of the countries use 2 to 5 different types of vaccines, the maximum types of vaccines used by Philippines country are 11 which we can see in the boxplot as outlier.

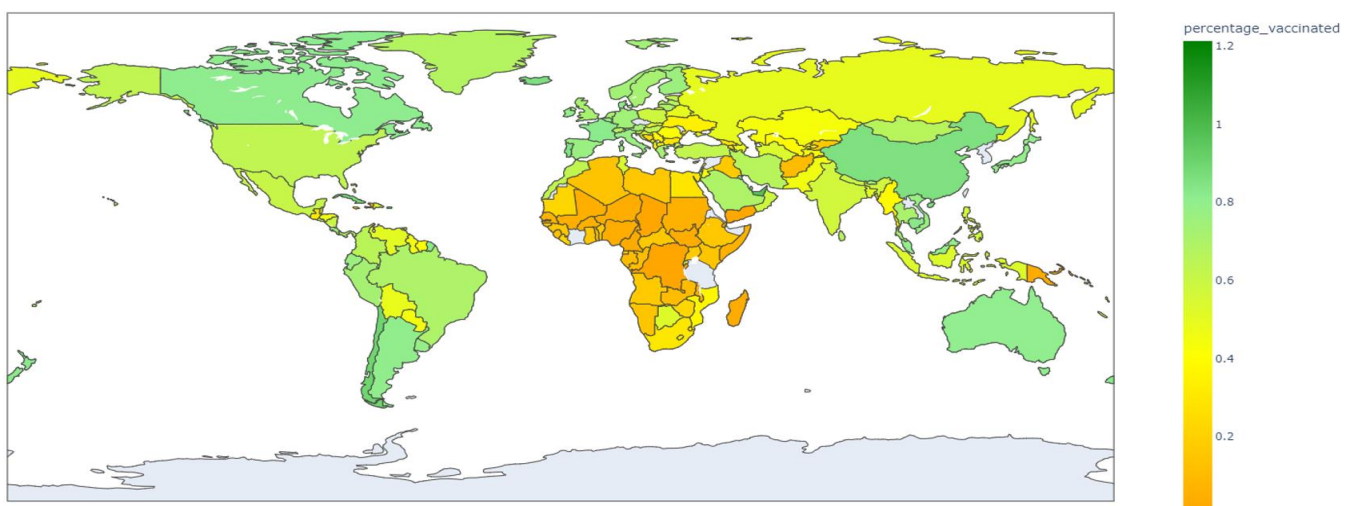


Number of Vaccines administered in different WHO Regions



Compared to all the WHO regions the western pacific region has administered maximum number of vaccines, followed by south-east Asia region, as these contain densely populated countries.

Vaccinated people % in each country



To better understand the situation of vaccines we have calculated the percentage of population who are completely vaccinated for each country. The map shows that most countries in Africa continent have lower percentages of vaccinated individuals when compared to the other parts of the world.

Conclusion: After observing the time frames of when the vaccination began, we see that though there is an increase in the number of cases, the deaths have been controlled. So, we can say that vaccination helps increasing the immunity of people to COVID19.