INTRODUCTION

The COVID-19 pandemic has profoundly impacted global health, economies, and daily life. Analysing COVID-19 data is crucial for understanding the progression of the pandemic, evaluating the effectiveness of public health interventions, and guiding future responses. This project utilizes Tableau, a powerful data visualization tool, to analyse and present COVID-19 data in a meaningful way.

Tableau's interactive dashboards allow for dynamic exploration of COVID-19 statistics, enabling users to uncover insights from various dimensions such as case counts, recoveries, deaths, and vaccination rates. By visualizing this data, we aim to:

1. Identify Trends: Examine the evolution of COVID-19 cases over time, including peaks and declines.
2. Understand Regional Disparities: Compare infection rates and impacts across different regions to highlight areas with significant outbreaks or lower control measures.
3. Evaluate Health Responses: Assess the effectiveness of public health measures and vaccination campaigns in controlling the spread of the virus.
4. Inform Decision-Making: Provide actionable insights for policymakers, healthcare professionals, and the public to better respond to current and future health crises.

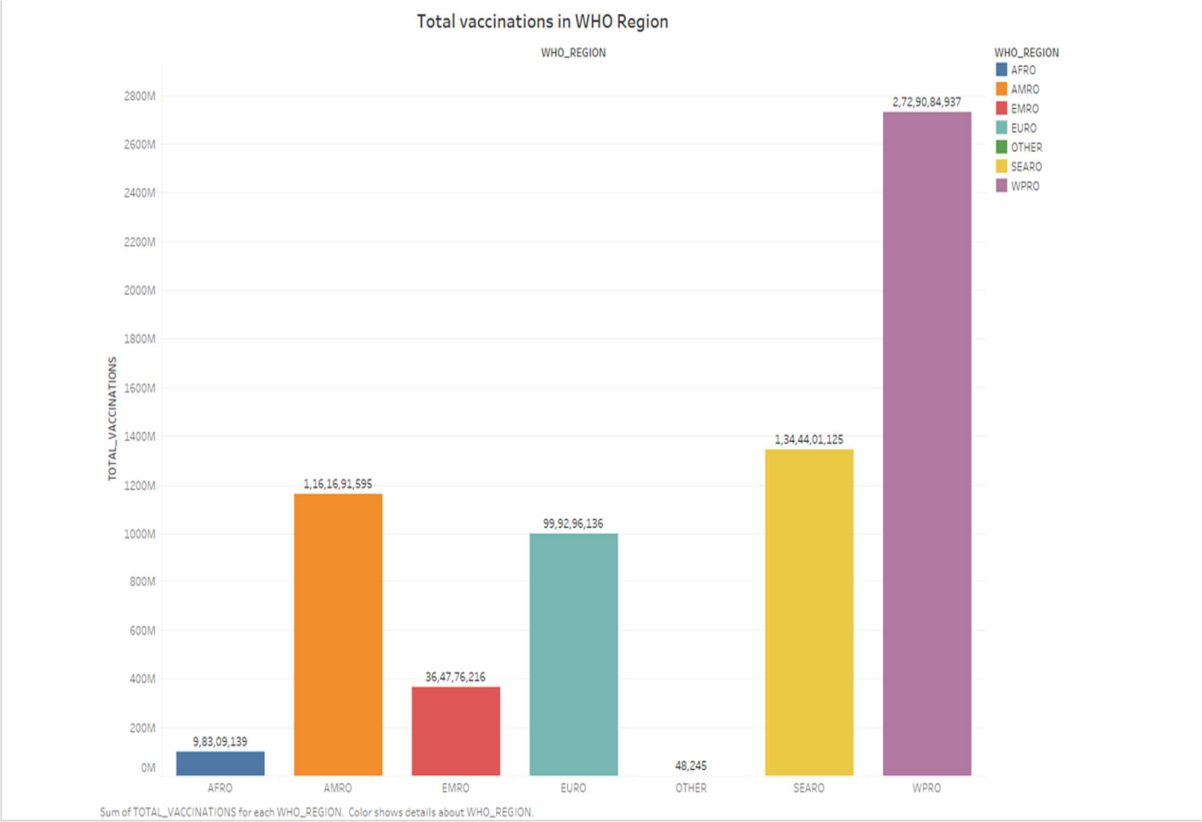
This analysis focuses on a comprehensive COVID-19 dataset, which includes metrics such as confirmed cases, deaths, recoveries, and vaccination rates. By leveraging Tableau's capabilities, this project aims to deliver clear, actionable

insights and support data-driven decision-making in the fight against COVID-19.

Problem Statement:

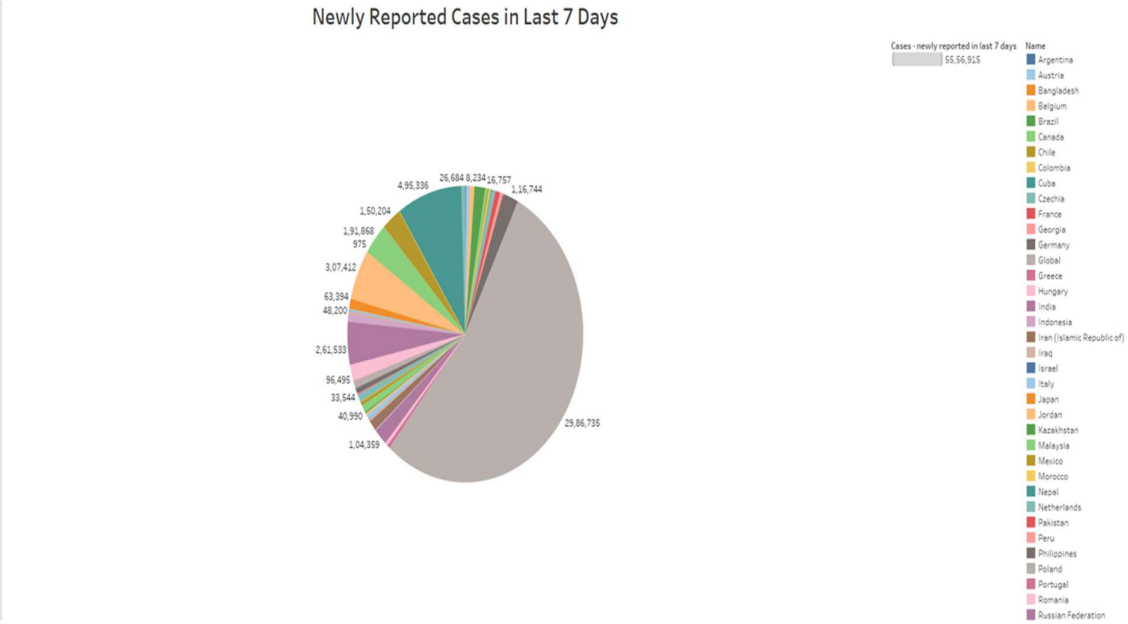
To Analyse the covid 19 data worldwide and extracting meaningful insights.

- Bar Chart
- Pie Chart
- Tree Maps
- Scatter Plot
- Horizontal Bars
- Side By Side Bars
- Box Plot
- Geospatial Maps



INSIGHTS:

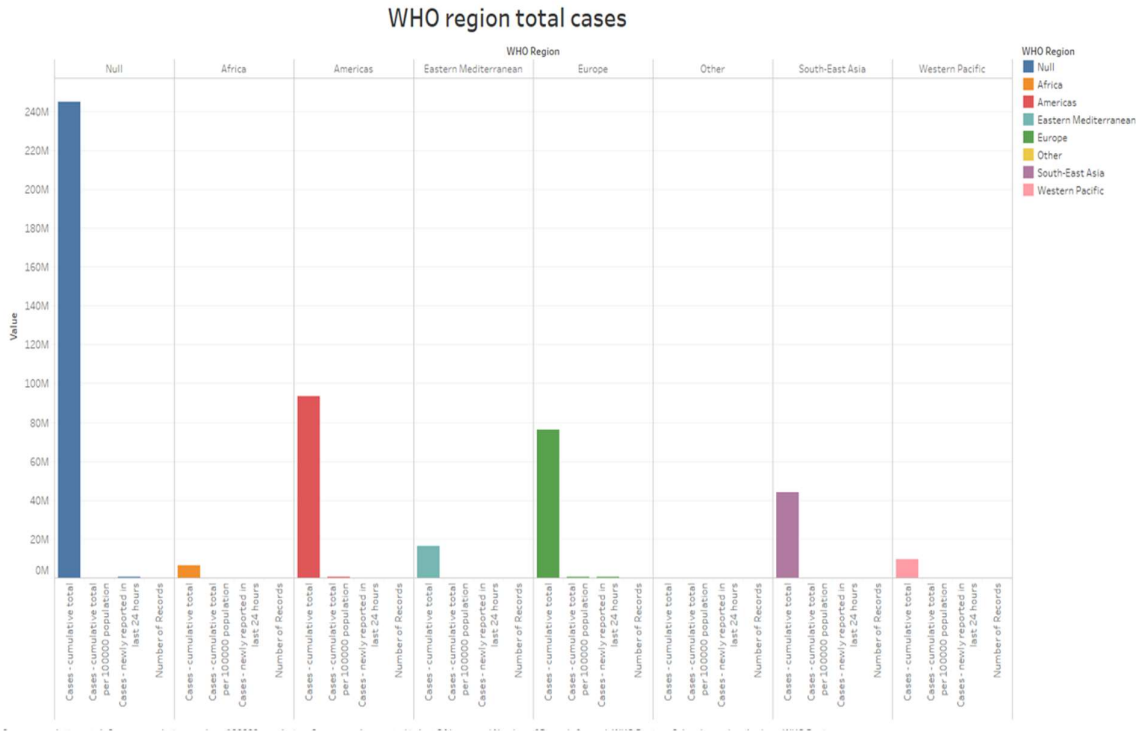
In analysing the bar graph comparing total vaccination rates across WHO regions, several key insights emerge. The graph reveals significant regional disparities in vaccination coverage, with some regions demonstrating notably higher vaccination rates than others. In contrast, regions like Africa and parts of Asia exhibit lower vaccination rates, which may be attributed to logistical challenges, vaccine supply issues, and healthcare infrastructure limitations. These variations highlight the need for targeted efforts to improve vaccination access and distribution in under-vaccinated regions. The data also underscores the importance of continued support and resource allocation to ensure equitable global vaccination coverage, which is crucial for controlling the spread of COVID-19 and achieving herd immunity.



INSIGHTS:

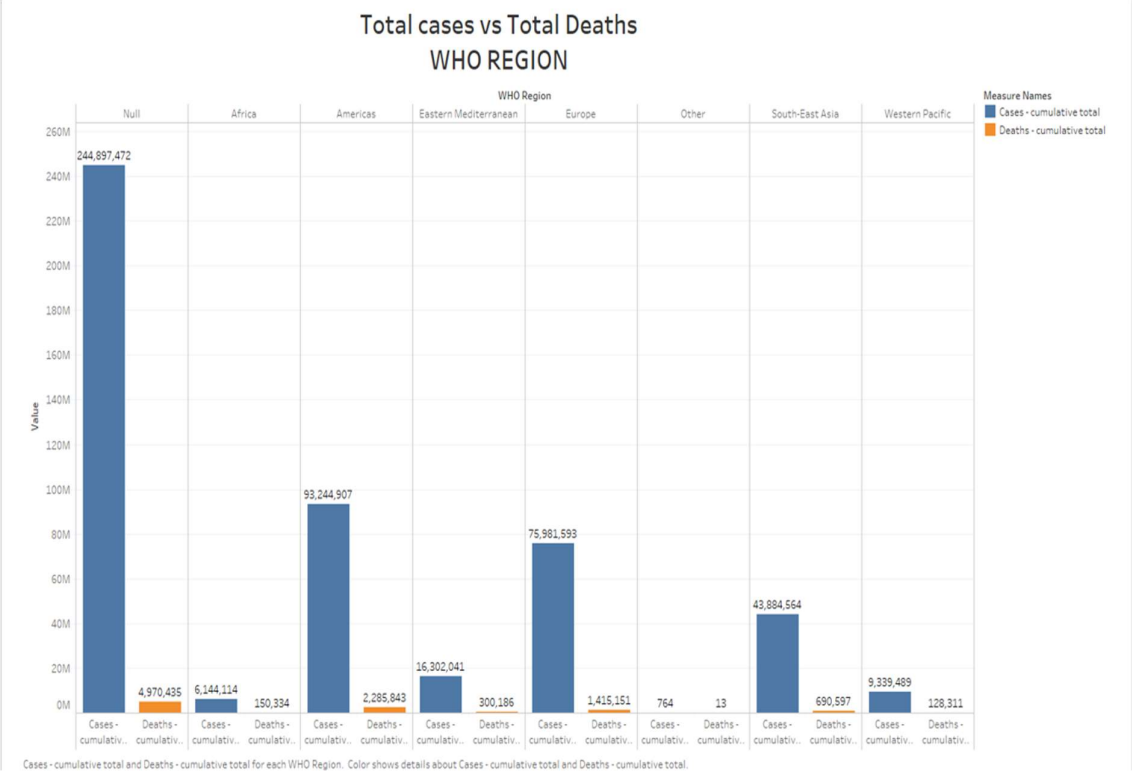
The pie chart depicting total vaccinations administered in the last 7 days offers a clear snapshot of recent vaccination efforts. It visually breaks down the proportion of vaccines administered each day, highlighting variations in daily vaccination rates. By examining the chart, one can quickly identify trends, such as days with higher vaccination activity, which might correlate with specific public health initiatives or outreach programs. Overall, this pie chart provides a concise overview of recent vaccination dynamics, allowing stakeholders to assess the effectiveness of current vaccination strategies and adjust plans as necessary to meet immunization goals.

SIDE-BY-SIDE GRAPH:



INSIGHTS

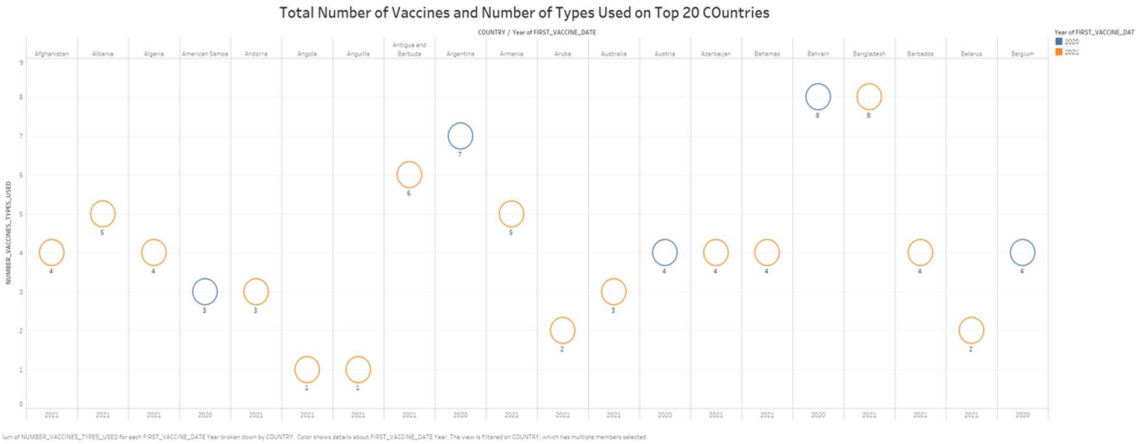
The chart illustrating total vaccinations across WHO regions provides a clear visual representation of the global distribution of vaccination efforts. Conversely, regions like Africa and Southeast Asia show a significantly lower share of total vaccinations, highlighting challenges such as limited vaccine availability, logistical constraints, and disparities in healthcare infrastructure. This distribution underscores the need for targeted interventions and support to ensure equitable vaccine access across all regions, aiming to bridge the gap and enhance global immunization coverage.



INSIGHTS:

This chart is comparing total COVID-19 cases to total deaths across WHO regions reveals significant disparities in the impact of the pandemic globally. The chart illustrates that while some regions have experienced a high number of total cases, the proportion of deaths relative to cases varies widely. Conversely, regions with lower total cases but higher death proportions may indicate more severe outcomes or less effective healthcare infrastructure. These insights underscore the importance of considering both total case numbers and death rates when evaluating the pandemic's impact and assessing regional healthcare responses.

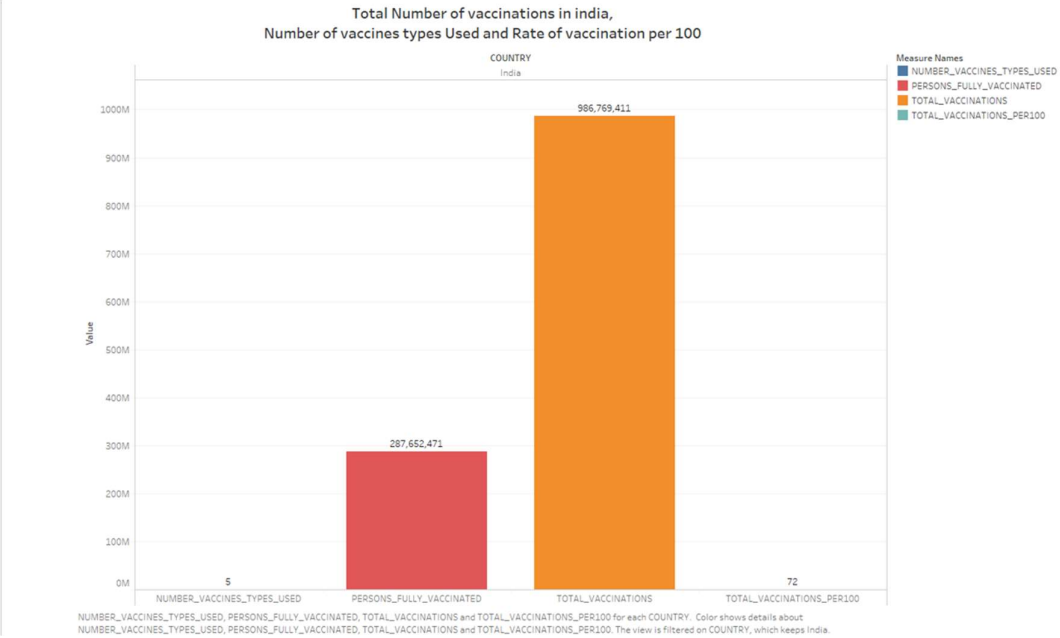
SCATTER PLOT



INSIGHTS:

A scatter plot comparing the total number of vaccinations to the number of vaccine types used in the top 20 countries can offer valuable insights. You may observe a positive correlation, where countries using a wider variety of vaccines achieve higher overall vaccination numbers, suggesting that diversity in vaccine types can enhance coverage. Outliers, such as countries with high vaccination rates but fewer vaccine types, could reflect strong logistical systems or specific vaccine preferences. Conversely, countries with many vaccine types but lower vaccination rates might face challenges in distribution or public acceptance. Regional trends may also become apparent, highlighting differences in vaccination strategies across various regions. These insights can help inform public health policies, emphasizing the need for efficient distribution and building public trust, especially in countries with a broad range of vaccines but lower overall vaccination numbers.

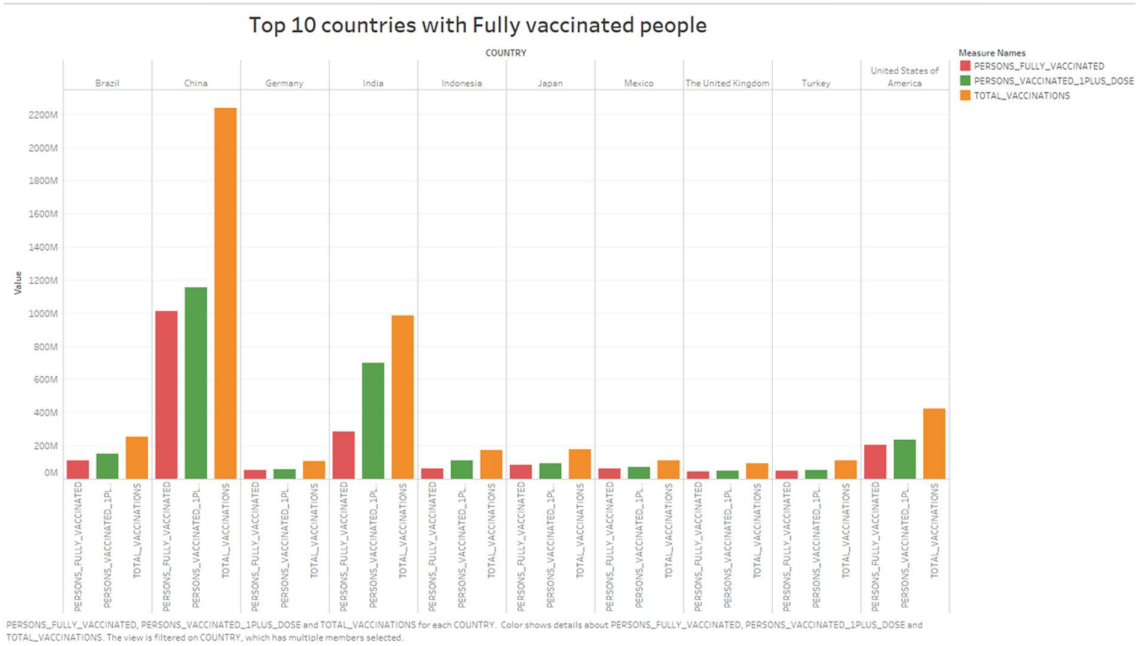
DUAL COMBINATION:



INSIGHTS:

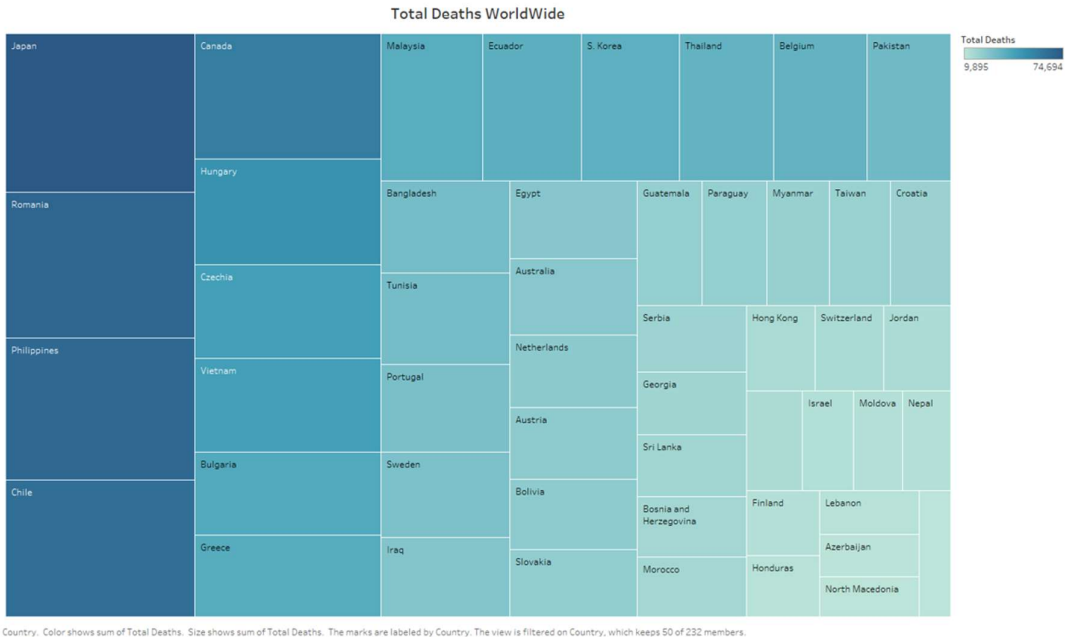
The bar plot comparing the total number of vaccinations to the number of vaccine types used in the top 20 countries reveals several key insights. Countries that deployed a greater variety of vaccine types often achieved higher total vaccination numbers, suggesting that access to multiple vaccines can enhance vaccination coverage. This diversity allows for more flexibility in addressing supply chain issues, vaccine availability, and population preferences. Additionally, countries with fewer vaccine types but still high vaccination numbers might have relied on efficient distribution networks or prioritized certain vaccines with higher efficacy or acceptance. The plot highlights the strategic importance of both vaccine diversity and distribution efficiency in achieving widespread vaccination

STACKED BAR GRAPH



INSIGHTS:

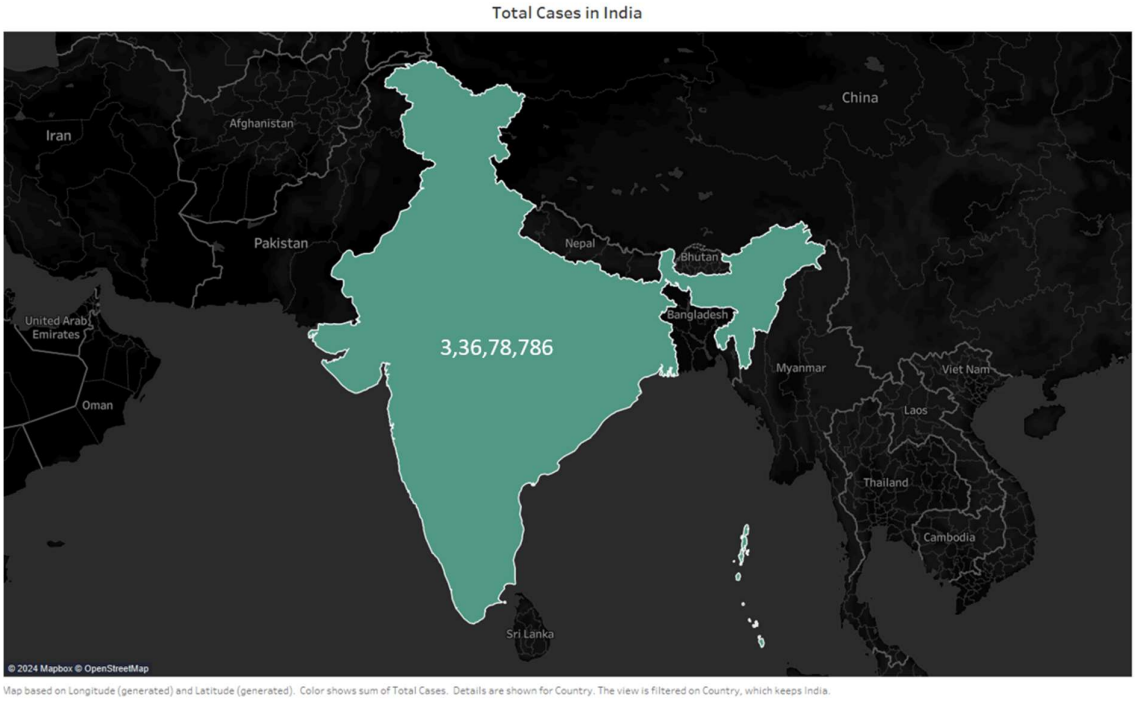
The stacked bar graph of fully vaccinated people in the top 20 countries offers several insights. Countries with taller bars generally have a larger fully vaccinated population, indicating effective vaccination efforts. The different segments within each bar show how various factors, like vaccine types or specific demographics, contribute to the overall vaccination numbers. Countries with a diverse mix of segments might be using multiple vaccine types or targeting different groups, such as the elderly or high-risk individuals. This graph highlights how different countries have approached their vaccination campaigns and the progress they've made towards protecting their populations.



INSIGHTS:

A heat map of total deaths worldwide provides a visual overview of where the highest mortality rates are concentrated. Darker areas on the map indicate regions with higher death counts, highlighting countries or regions that have been most severely impacted. These areas may correlate with factors such as large population sizes, widespread outbreaks, or challenges in healthcare systems. Lighter areas, on the other hand, suggest regions with lower death rates, possibly due to effective public health measures, better healthcare infrastructure, or smaller populations. This map allows for quick identification of global patterns, showing which regions have faced the greatest challenges in

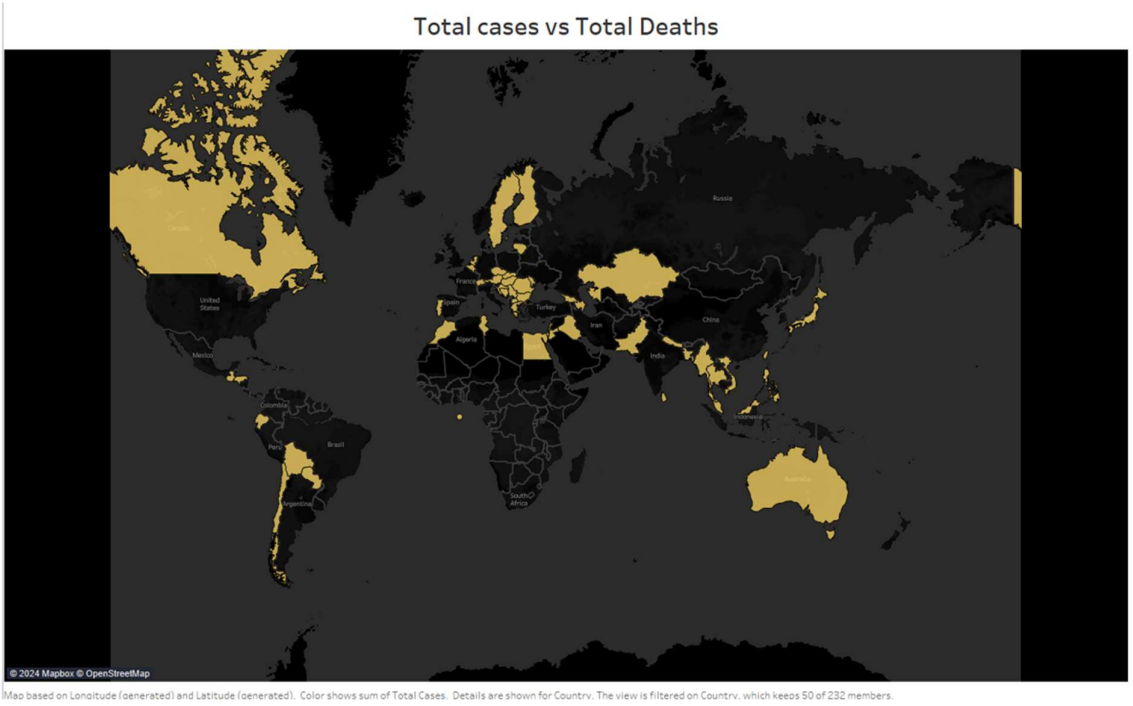
GEOSPATIAL MAPS



INSIGHTS:

A geospatial map of total deaths in India highlights where deaths are most concentrated across the country. Darker areas indicate regions with higher death tolls, which might be linked to densely populated cities or areas severely impacted by health crises. Conversely, lighter areas show lower death rates, potentially due to less population density or more effective local healthcare. The map helps to identify regional patterns and disparities in mortality.

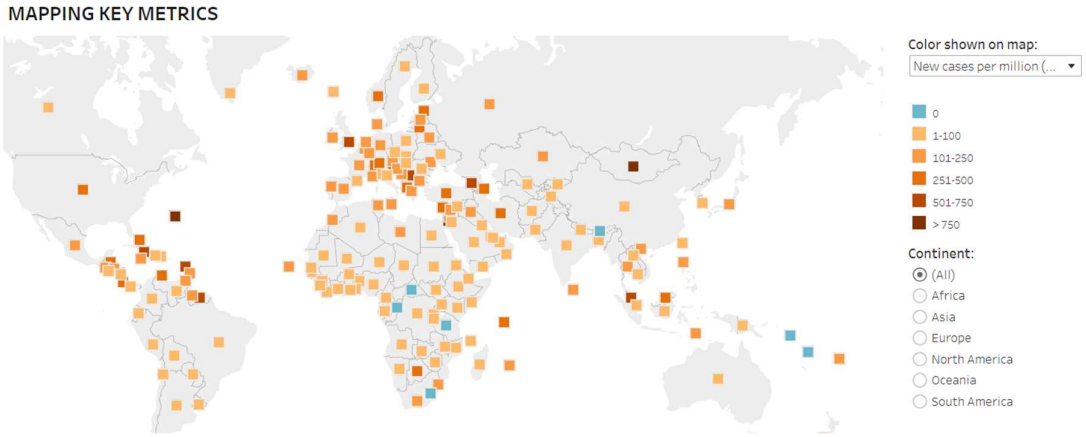
GEOSPATIAL MAPS



INSIGHTS:

A world map comparing total cases to total deaths provides a comprehensive view of the global impact of a health crisis. Areas with high total case counts and corresponding high death tolls are often highlighted with darker colours, indicating regions severely affected by the outbreak. This can reveal patterns such as overwhelmed healthcare systems or high transmission rates. Conversely, regions with high case counts but relatively lower death rates might suggest effective treatment or healthcare responses. Areas with fewer cases and deaths show less impact, possibly due to effective containment measures or lower transmission rates.

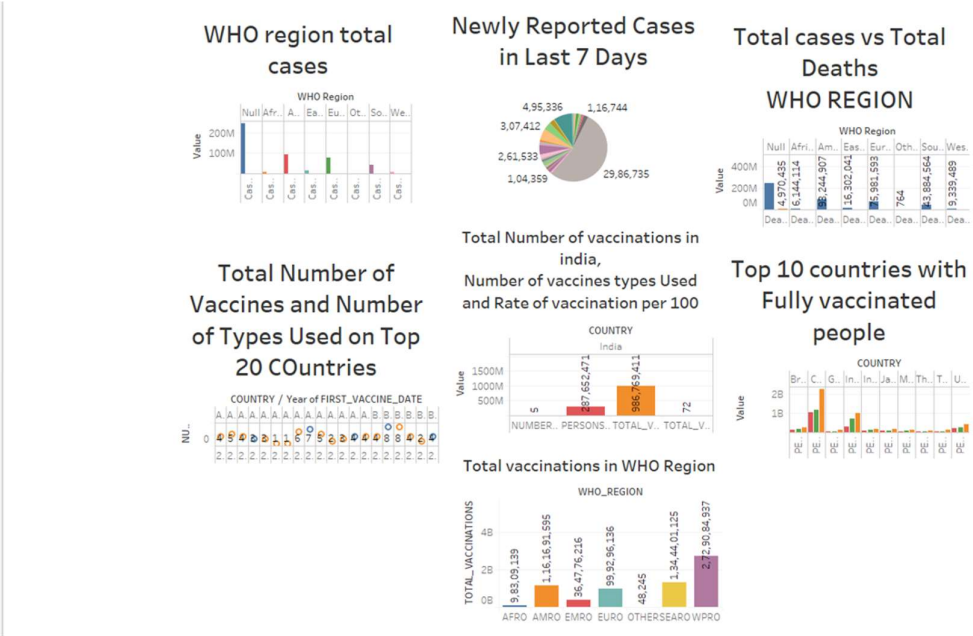
MAPS



INSIGHTS:

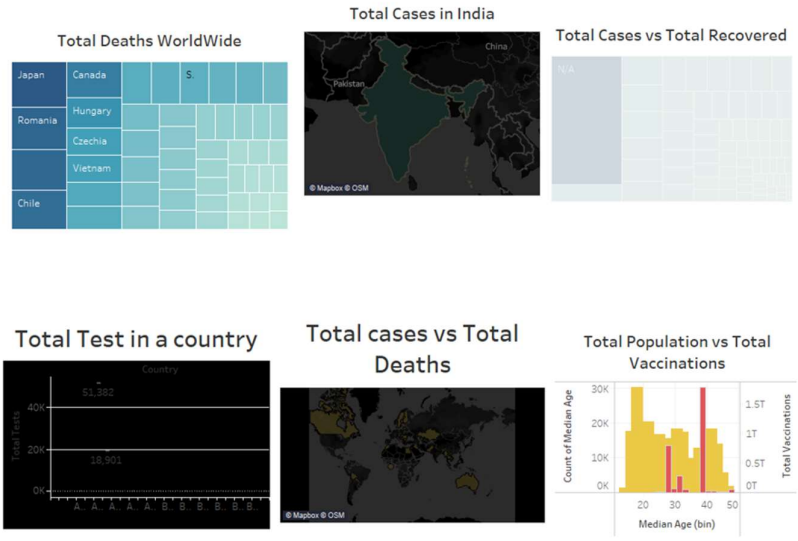
A world map of new COVID-19 cases registered worldwide provides a snapshot of the current global situation. Areas with high concentrations of new cases are typically highlighted with darker colors, pointing to regions experiencing significant outbreaks or surges. This visualization allows for quick identification of hotspots, which might be linked to factors like high population density, variants of concern, or less effective public health measures. Lighter areas indicate regions with fewer new cases, potentially reflecting successful control measures or lower transmission rates. The map helps in understanding the spread of the virus, guiding public health responses, and focusing resources on the most affected areas.

DASHBOARD 1



The Dashboard 1 provides a comprehensive overview of COVID-19 statistics through various visualizations. The line graph for WHO regional cases tracks the number of COVID-19 cases over time across different regions, revealing trends and fluctuations. The pie chart of newly reported cases in the last 7 days breaks down recent case spikes by region, helping to identify where the virus is spreading most rapidly. The scatter plot comparing total deaths to total cases by WHO region assesses mortality rates in relation to infection rates, providing insight into the severity of the impact across regions. The bar graphs illustrate vaccination efforts, with one showing the total number of vaccine doses administered in the top 20 countries and another detailing the total vaccinations by WHO region. Additionally, a bar graph focusing on the top 10 countries with the highest percentage of fully vaccinated people highlights successful vaccination campaigns. These visualizations collectively offer valuable insights into the global spread of COVID-19, the effectiveness of vaccination efforts, and regional differences in both case and death rates.

DASHBOARD 2



The Dashboard 2 provides a comprehensive view of COVID-19 statistics through several visualizations. The heatmap of total deaths worldwide highlights countries with the highest mortality rates, such as Russia and Romania, indicating areas most severely impacted by the pandemic. A map of India shows regional variations in total COVID-19 cases, helping to pinpoint hotspots within the country. Although specific data points are not visible, the graph comparing total cases to total recovered likely offers insights into recovery rates and healthcare effectiveness. Another graph tracks COVID-19 testing efforts across countries, showing how testing volumes impact case detection. The plot of total cases versus total deaths provides an overview of mortality rates relative to infection numbers, while the scatter plot comparing total population to total vaccinations likely tracks global vaccination progress. These visualizations collectively offer valuable insights into the pandemic's impact, response effectiveness, and vaccination coverage.

CONCLUSION

The visualizations provided offer a detailed and multifaceted view of the COVID-19 pandemic's global impact. The heatmap of total deaths worldwide underscores the severe toll of the pandemic, highlighting regions with the highest mortality rates. The map of India reveals significant regional differences in case numbers, identifying hotspots for targeted interventions. Although specific data points are unclear, comparisons between total cases and recoveries, as well as total cases and deaths, provide insights into the effectiveness of healthcare responses and mortality rates. The graph of total tests emphasizes the role of testing in detecting and managing cases, while the scatter plot of population versus vaccinations tracks global vaccination progress. Together, these visualizations enhance our understanding of the pandemic's dynamics and inform public health strategies and resource allocation.