Report on Visualizing COVID-19 Cases Using Tableau

Introduction

This project focuses on analyzing global COVID-19 trends using the comprehensive OWID (Our World in Data) dataset. The dataset includes daily records of confirmed cases, deaths, and vaccination progress, segmented by country and continent. The primary objective is to explore the impact of vaccinations and to uncover global patterns using Tableau dashboards.

Data Collection and Cleaning

Tools & Steps:

- Data Source: owid-covid-data.csv
- Language & Libraries**:** Python (pandas)
- Loaded the dataset and examined its shape and column names
- Removed 19 irrelevant columns to simplify the dataset for visualization
- Converted the date column to a datetime format for time-series analysis
- Created a new column vaccine_period to distinguish between Pre-vaccine and post-vaccine data, using the first non-null vaccination record dated.
- Verified data quality: checked for missing values, confirmed no duplicates, reviewed data types, and exported the cleaned dataset to a .csv file for use in Tableau

Cleaned Dataset Shape: 166,326 rows × 49 columns

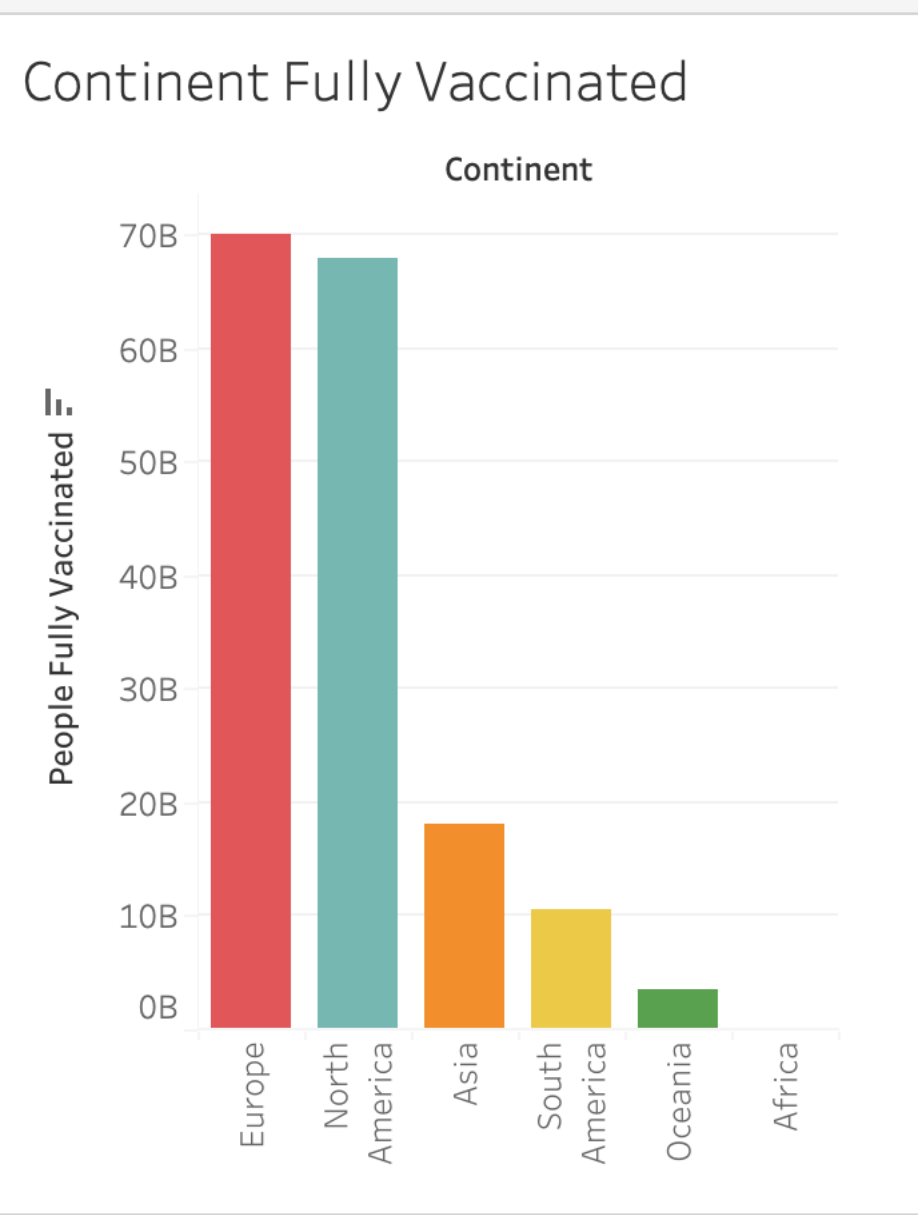
Exploratory Data Visualization & Dashboard Overview

Tool Used: Tableau

The Tableau dashboard consists of four main visualizations designed to examine the pandemic's progression and vaccine impact globally and across continents.

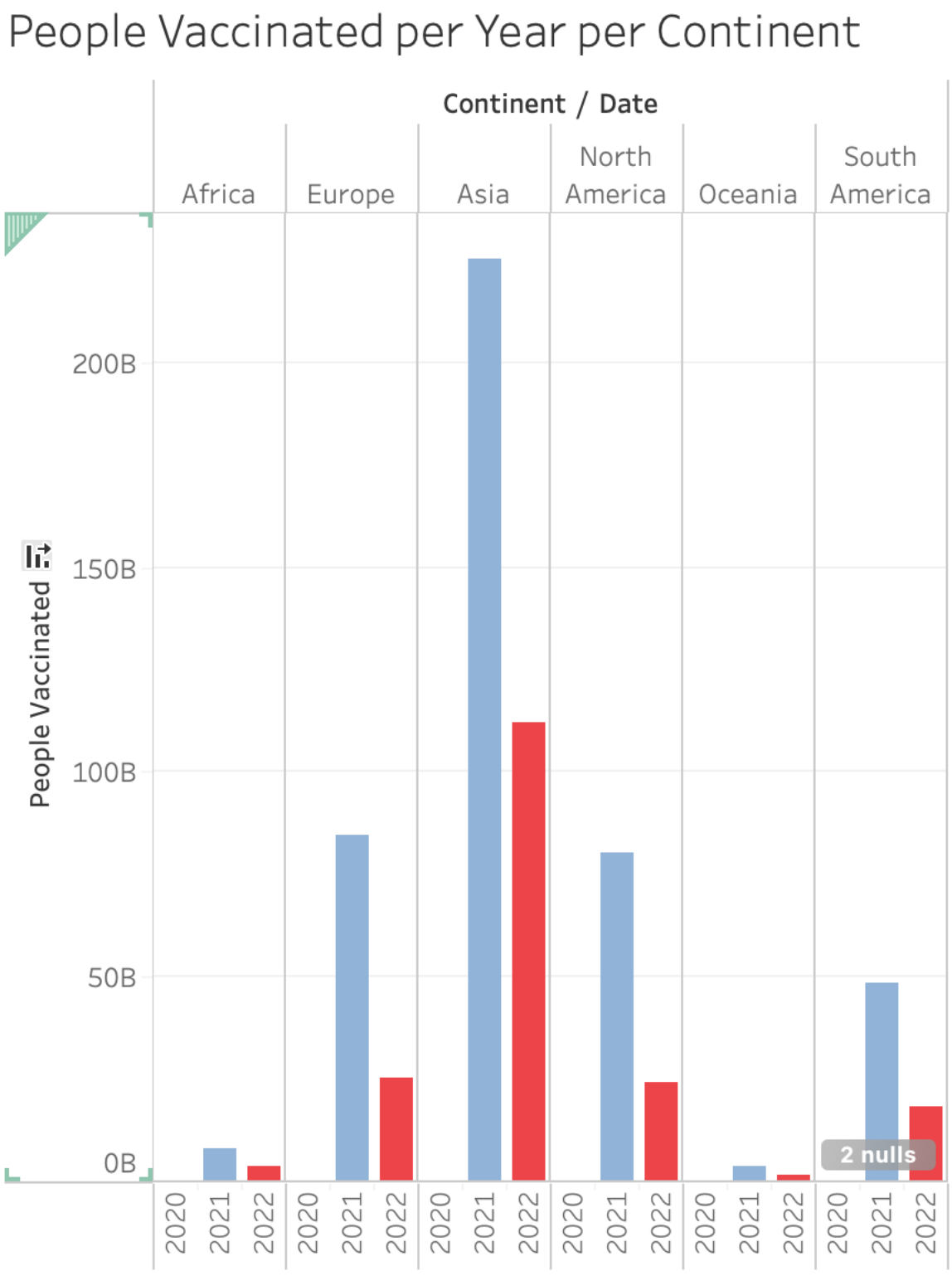
1. Continent Fully Vaccinated (Bar Chart)

- Displays the total people fully vaccinated by continent
- Focuses on Post-vaccine period only
- Europe and North America had the highest number of fully vaccinated individuals



2. People Vaccinated per Year per Continent (Clustered Bar Chart)

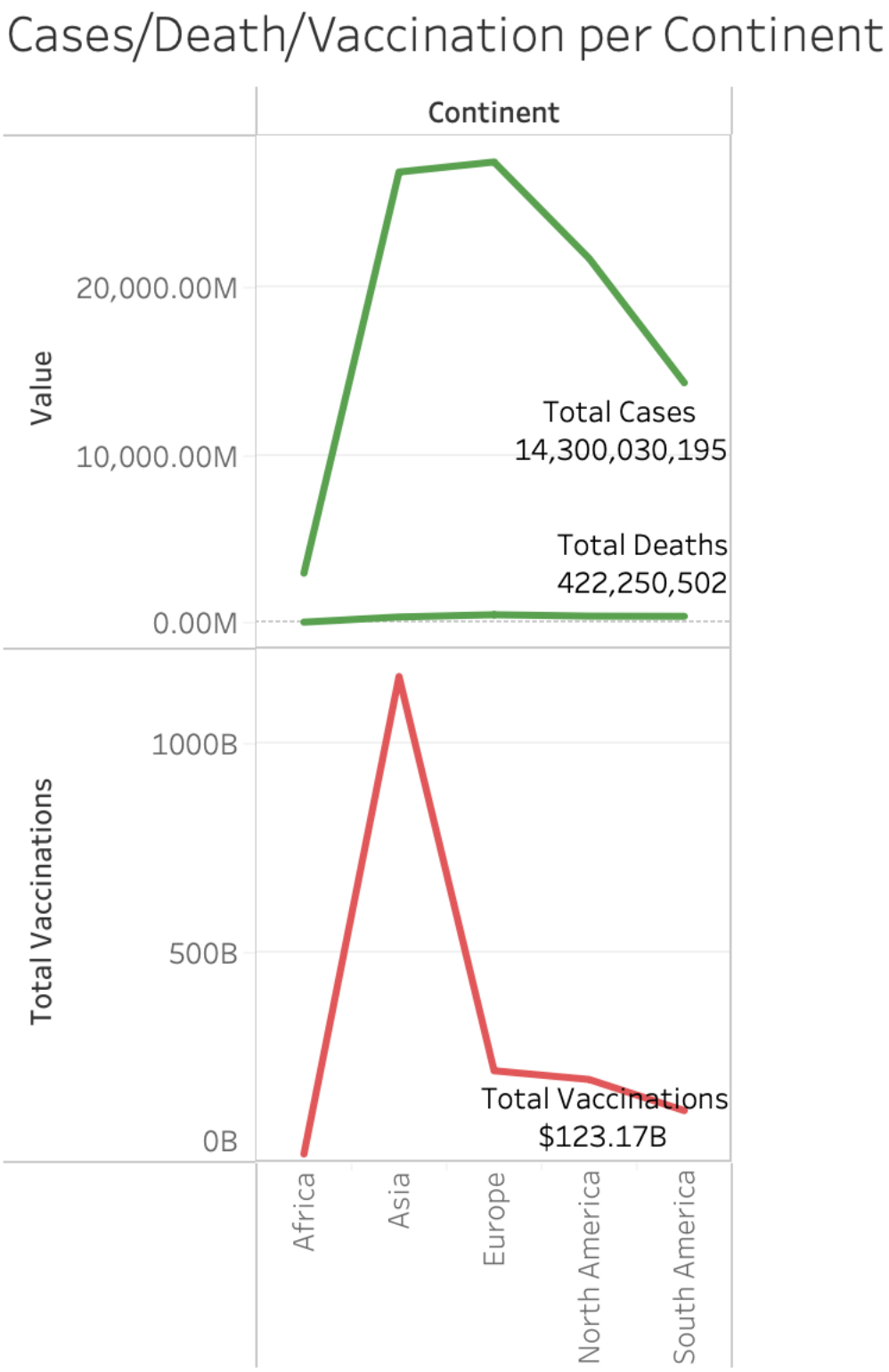
- Compares annual vaccination counts (2020–2022) across continents
- Asia experienced the largest vaccination peak in 2021



3. Cases, Deaths, and Vaccinations per Continent (Line Chart)

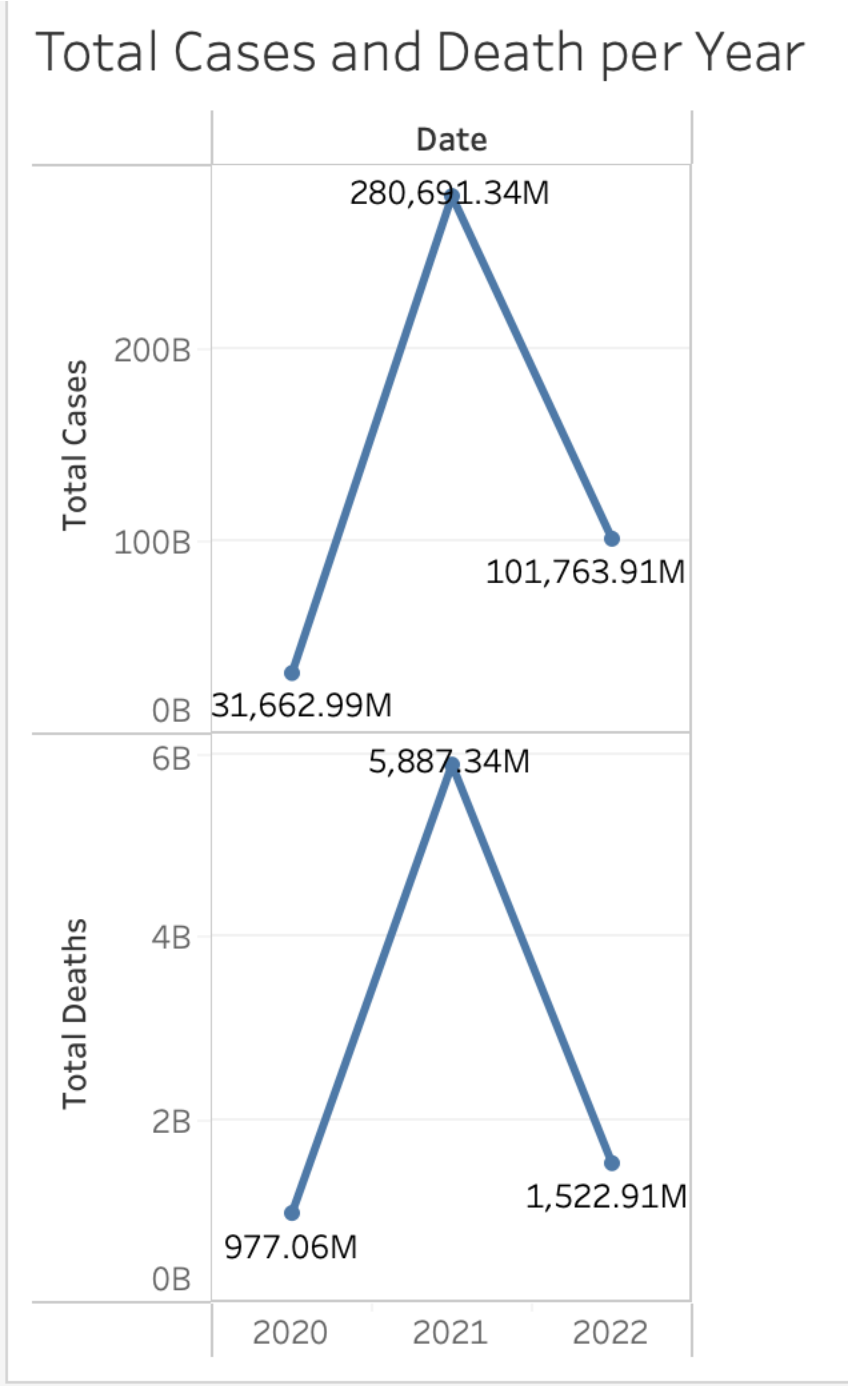
- Tracks cumulative metrics: total cases, deaths, and vaccinations per continent

- Asia reported the highest vaccination and death counts, but no clear proportionality between total cases and vaccinations

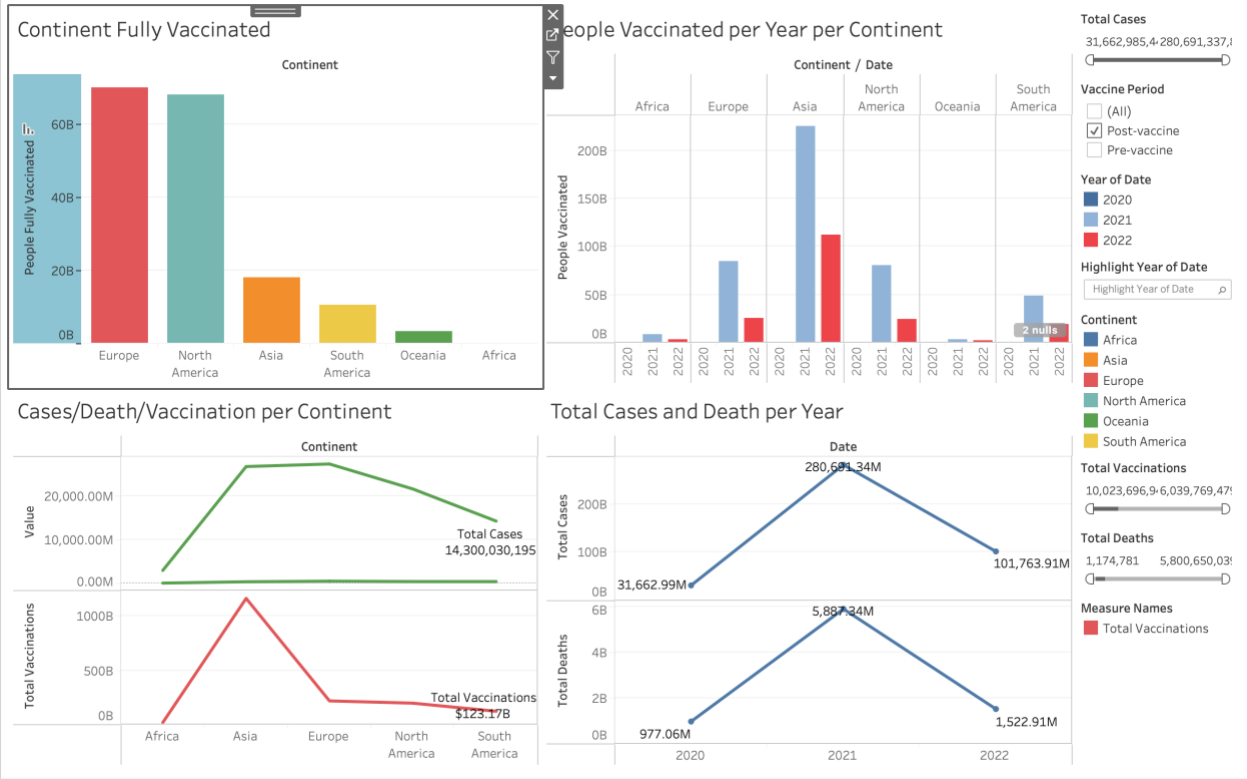


4. Total Cases and Deaths per Year (Line Chart)

- Global trends of total cases and deaths by year
- Both peaked significantly in 2021



Dashboard Overview



Key Insights

- A marked increase in vaccinations began in December 2020, which influenced new case and death trends in many regions
- Europe and North America lead in full vaccination coverage
- Despite leading in vaccination volume in Asia, still reported high case and death numbers
- Globally, both COVID-19 cases and deaths peaked in 2021, illustrating the pandemic's most intense year before stabilizing

Conclusion

Using Tableau dashboards and Python preprocessing, this analysis successfully visualized the global COVID-19 situation across different dimensions. The comparison of pre- and post-

vaccine trends provides meaningful insights into vaccination efforts and their impacts. This data-driven approach supports a better understanding of regional disparities and pandemic dynamics.