COVID-19 Data Analysis Using ELK Stack

Dataset:

The dataset contains information about covid 19 year 2020 global pandemic .

Elasticsearch:

Elasticsearch is a distributed, RESTful search and analytics engine designed for horizontal scalability, reliability, and real-time search capabilities. It is part of the Elastic Stack and is often used for search, log analysis, and data visualization.

Kibana:

Kibana is an open-source data visualization and exploration tool that integrates with Elasticsearch. It provides a user-friendly interface to create, manage, and visualize data using a variety of charts, graphs, maps, and dashboards.

Visualization Overview:

Chart 1: Latest Confirmed Cases by Top 10 Countries (Vertical Bar Chart)

This chart displays the latest confirmed COVID-19 cases for the top 10 countries, represented using a vertical bar chart. The height of each bar corresponds to the number of confirmed cases.

Chart 2: Tree Map for Active Cases by Country

The tree map visually represents the distribution of active COVID-19 cases for various countries. Each rectangle's size is proportional to the number of active cases in a particular country.

Chart 3: Latest Top 10 Countries - Recovered Cases

This chart showcases the countries with the highest number of recovered COVID-19 cases, displaying the data in descending order. It provides insights into the recovery rates in different countries.

Chart 4: Mortality Rate (Pie Chart)

This pie chart illustrates the mortality rate, showing the proportion of deaths in relation to the total confirmed cases. Each slice represents a country's mortality rate, helping to compare fatality rates.

Chart 5: Stacked Line Chart - Average Deaths and Recoveries Over Time

This stacked line chart displays the average number of deaths and recoveries over time, allowing for a comparison of trends in mortality and recovery rates as the pandemic progresses.

Chart 6: Data Table - Total Confirmed, Deaths, and Recovered Cases for Top 5 Countries

This data table summarizes the total confirmed cases, total deaths, and total recovered cases for the top 5 countries with the highest COVID-19 statistics. It provides a quick overview of the current situation in these countries.

Queries Explained

- Query to Get Data for Country – India:
  Retrieves COVID-19 data specifically for the country "India".

- Query to Get Data for Countries with Confirmed Cases > 1,000,000:
  Fetches data for countries with confirmed COVID-19 cases exceeding one million, sorted by the latest date.

- Query to Get Data for Countries with 0 Deaths
  Retrieves data for countries with no reported deaths due to COVID-19, sorted by the latest date.

- Query to Find First Time Surpassing 100,000 Cases for India
  Identifies the first instance when India surpassed 100,000 confirmed COVID-19 cases, sorted by date.

- Query to Find Countries with More Recovered Cases than Deaths.
  Determines countries where the number of recovered cases exceeds the number of deaths.

- Query to Get Top 10 Countries with Highest Recovery Cases
  Retrieves data for the top 10 countries with the highest number of recovered COVID-19 cases, sorted in descending order.

- Query to Get Total Confirmed Cases Over Time
  Aggregates and presents the total confirmed COVID-19 cases over time, using a date histogram.

- Query to Get Total Number of Confirmed, Deaths, and Recovered Cases
  Calculates and presents the overall total confirmed cases, total deaths, and total recovered cases globally.