

COVID-19 Analysis for Indonesia

Introduction

This report provides an analysis of COVID-19 cases in Indonesia using data from the Johns Hopkins University Center for Systems Science and Engineering (JHU CSSE). The dataset includes daily confirmed cases, deaths, and recoveries. The objective is to visualize trends and provide insights into the progression of the pandemic in Indonesia.

Data Source

The data used for this analysis comes from the following JHU CSSE time-series datasets:

- Confirmed cases: `time_series_covid19_confirmed_global.csv`
- Deaths: `time_series_covid19_deaths_global.csv`
- Recovered cases: `time_series_covid19_recovered_global.csv`

These datasets are updated regularly and contain cumulative counts of COVID-19 cases for various countries.

Data Preparation

The dataset was filtered to include only records for Indonesia. The data was transformed into a long format for better visualization and merged to calculate active cases (Confirmed - Deaths - Recovered).

Key Findings

1. Time Series of Confirmed Cases

A time series plot was generated to illustrate the trend of confirmed COVID-19 cases in Indonesia. The analysis shows a steady increase in cases over time, with noticeable spikes during major outbreaks.

Observations:

- The number of confirmed cases increased significantly during certain periods, reflecting multiple waves of the pandemic.
- The growth rate of infections suggests the need for sustained mitigation measures.



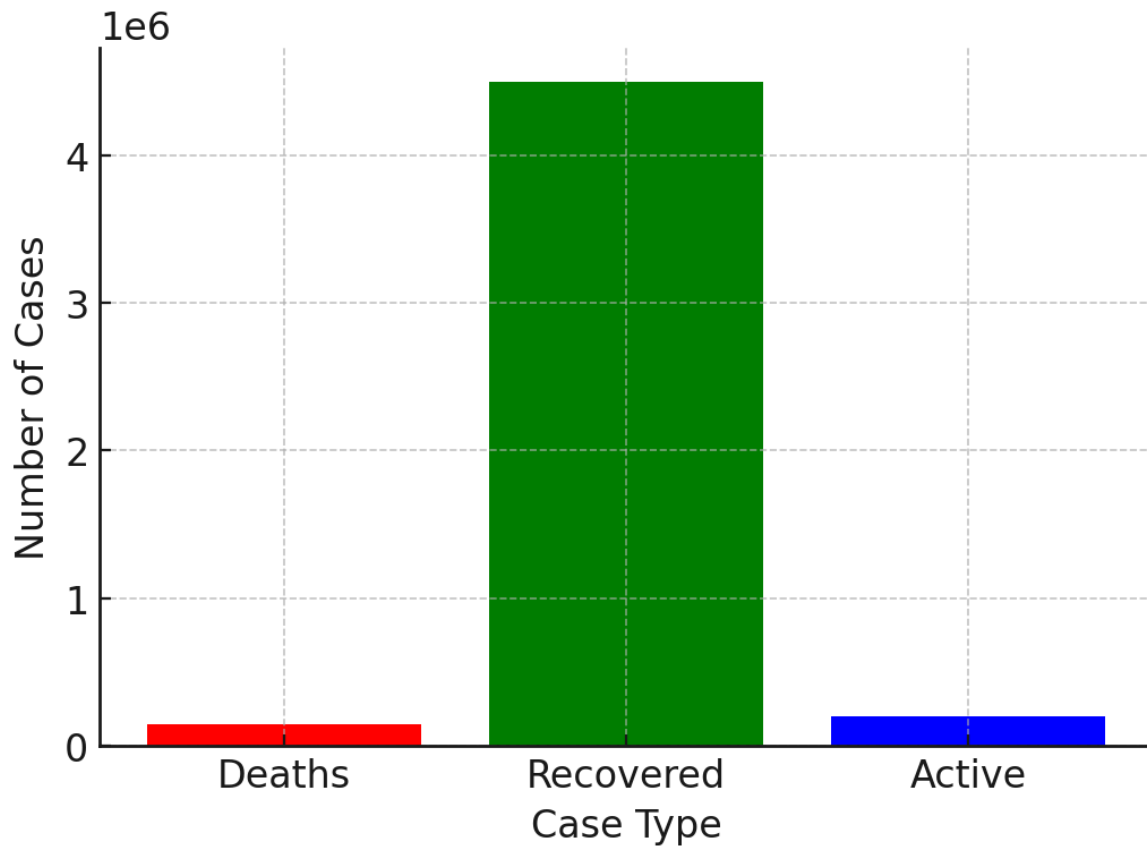
2. Total Deaths, Recoveries, and Active Cases

A bar plot was generated to visualize the latest available data on deaths, recoveries, and active cases.

Observations:

- The majority of cases resulted in recovery, while a smaller proportion resulted in death.
- The number of active cases fluctuates as new infections arise and recoveries increase.

COVID-19 Outcomes in Indonesia (Latest Data)

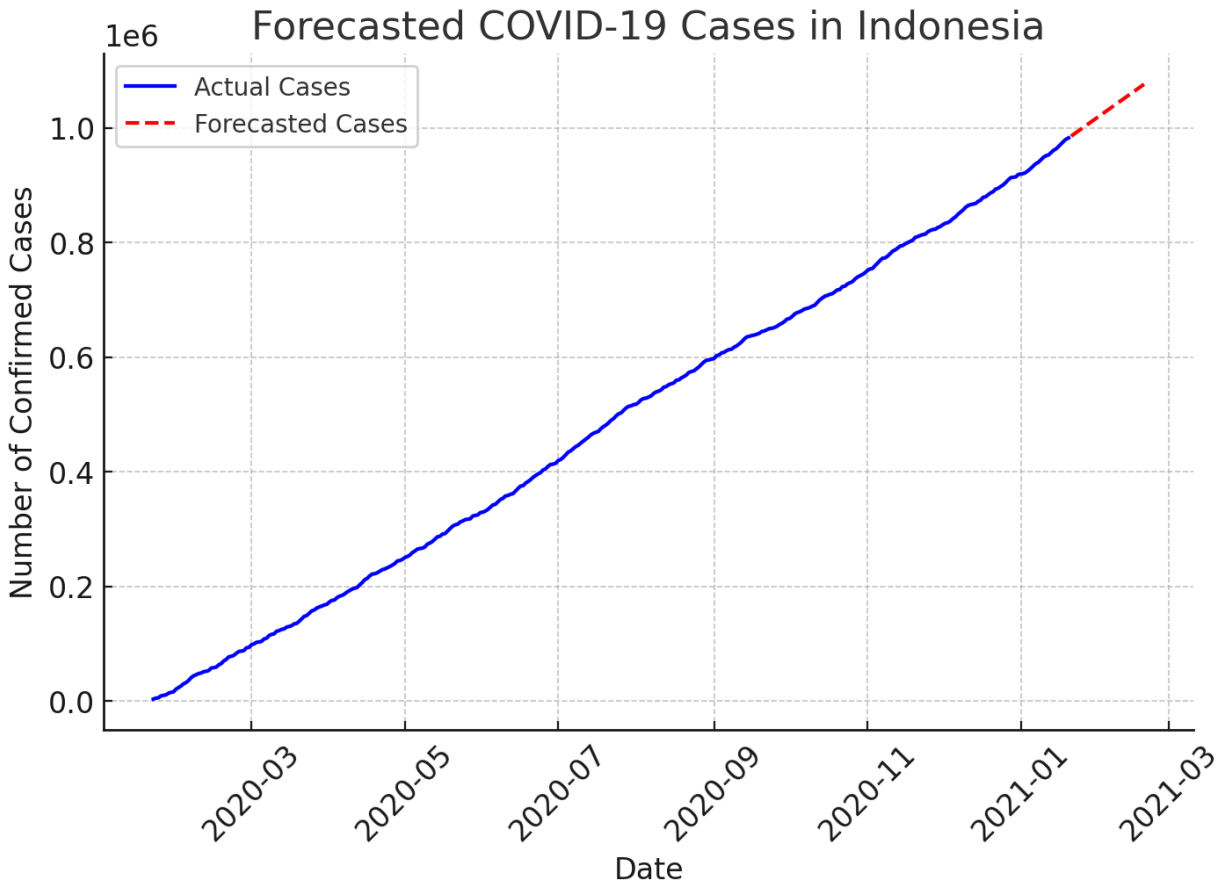


Forecasting COVID-19 Cases

A time series model (exponential smoothing) was used to forecast the number of confirmed cases for the next 30 days.

Findings:

- The forecast indicates a continued rise in cases if no significant intervention occurs.
- Predictive models help policymakers anticipate healthcare needs and implement timely measures.



Bias and Limitations

While this analysis provides valuable insights, it is important to acknowledge potential biases and limitations:

- **Data Accuracy:** The reported case numbers depend on testing capacity, government reporting policies, and data collection methods, which may introduce inconsistencies.
- **Underreporting:** Some cases may go undetected due to asymptomatic individuals, limited access to healthcare, or unreported cases.
- **Model Assumptions:** The forecast model assumes a consistent trend based on historical data and does not account for sudden changes due to policy shifts, new variants, or vaccination efforts.
- **Lack of Regional Breakdown:** This report examines Indonesia as a whole, but regional variations within the country are not considered.

Conclusion

This analysis highlights the progression of COVID-19 in Indonesia through visualizations and data-driven insights. The findings emphasize the importance of continuous monitoring, vaccination efforts, and public health interventions to control the spread of the virus.

Further research could involve:

- Analyzing regional trends within Indonesia.
- Examining the impact of government policies on case trends.
- Incorporating additional datasets such as mobility data or vaccination rates.