

# Covid-19 Analysis and Forecasting Report

## Overview

This report provides a comprehensive analysis and forecasting of the Covid-19 pandemic based on available data. The report covers the period up to July 27, 2020, and includes data from various countries with a focus on key statistics such as confirmed cases, active cases, recovered cases, and deaths.

## Key Findings

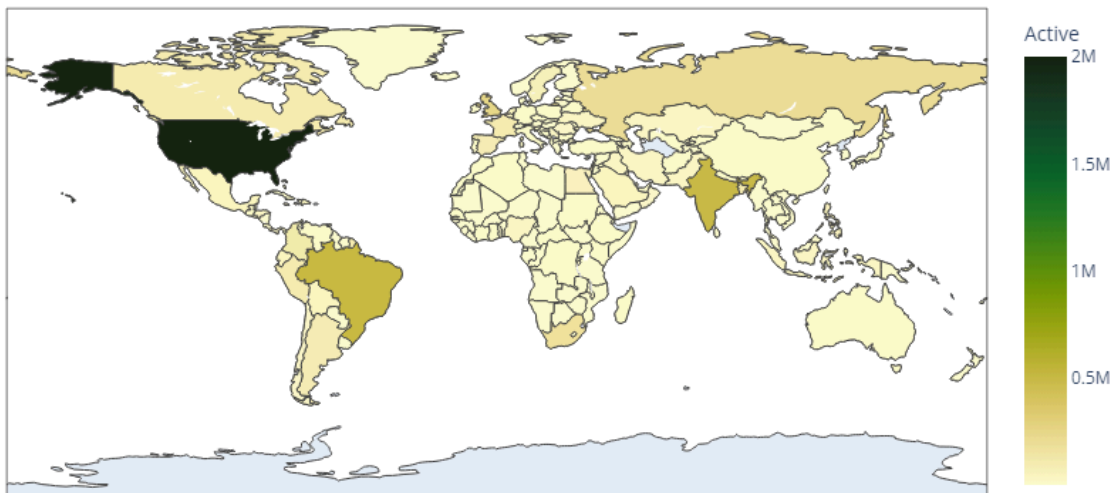
### Global Statistics

- **China** has the highest recorded data, followed by **Canada**, **UK**, **France**, and **Australia**.
- **US** has the highest number of confirmed, active, recovered, and death cases.
- Data available for 187 days, with the last recorded date being **July 27, 2020**.

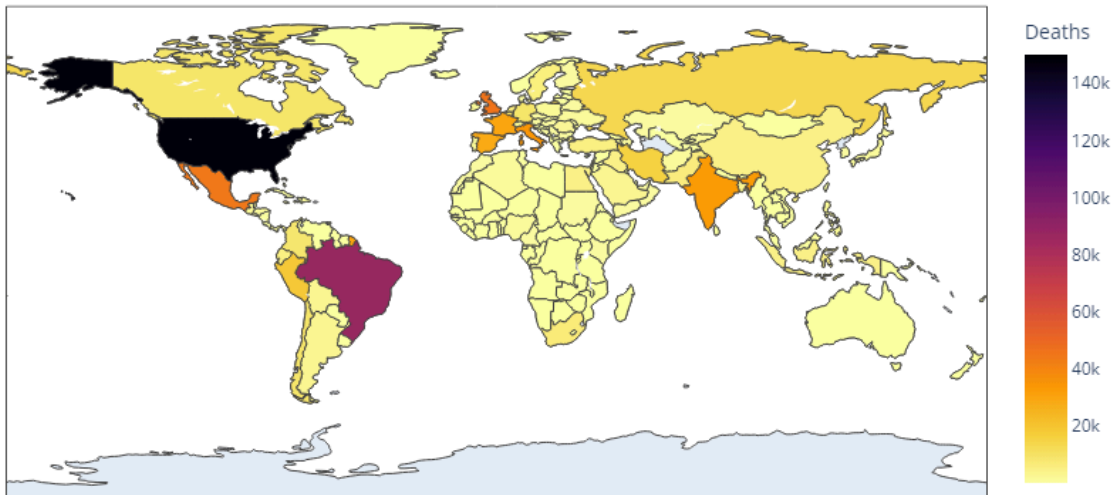
### Last Recorded Day Statistics

- **US** has the highest number of confirmed, active, and death cases.
- **Brazil** holds the highest number of recovered cases.
- **Maximum deaths** in a single day: 148,011 on July 27, 2020, by US.
- **Maximum confirmed cases** in a single day: 4,290,259 on July 27, 2020, by US.
- **Maximum recovered cases** in a single day: 1,846,641 on July 27, 2020, by Brazil.
- Distribution of cases:

Last recorded Active cases in World



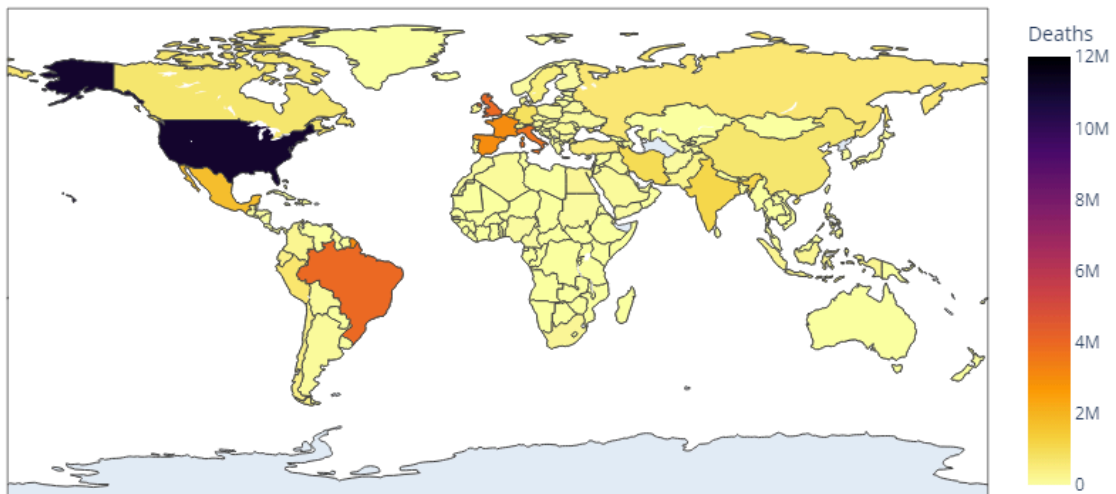
Last recorded Death toll in World



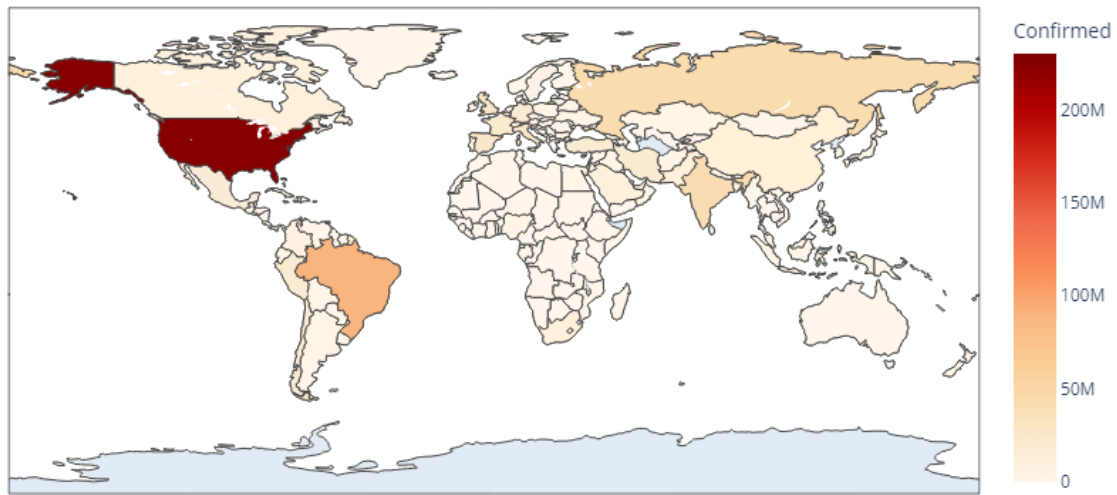
## Overall Statistics

- **Maximum deaths recorded:** 11,011,411 by US.
- **Maximum confirmed cases recorded:** 224,345,948 by US.
- **Maximum recovered cases recorded:** 56,353,416 by US.
- Distribution:

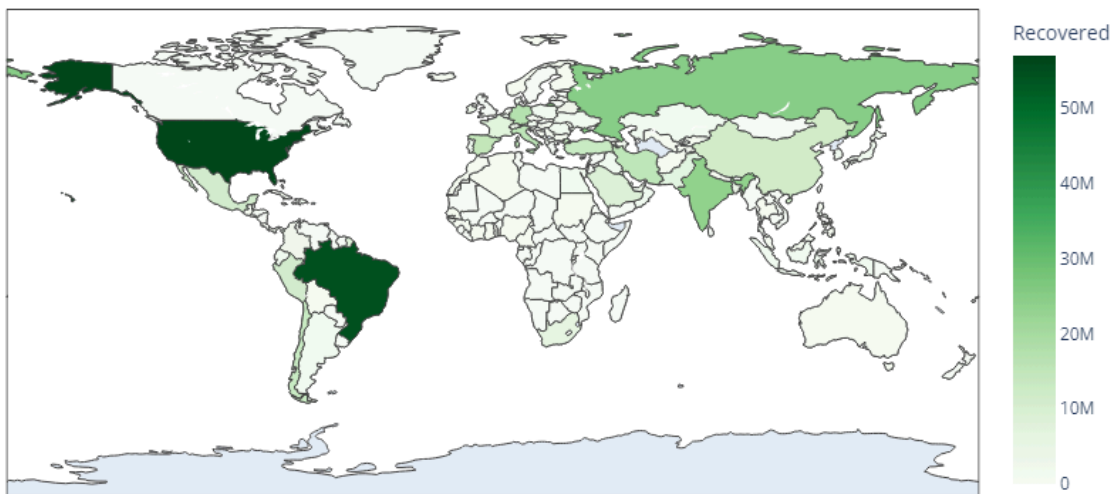
Overall Death toll in World



Overall confirmed cases in World

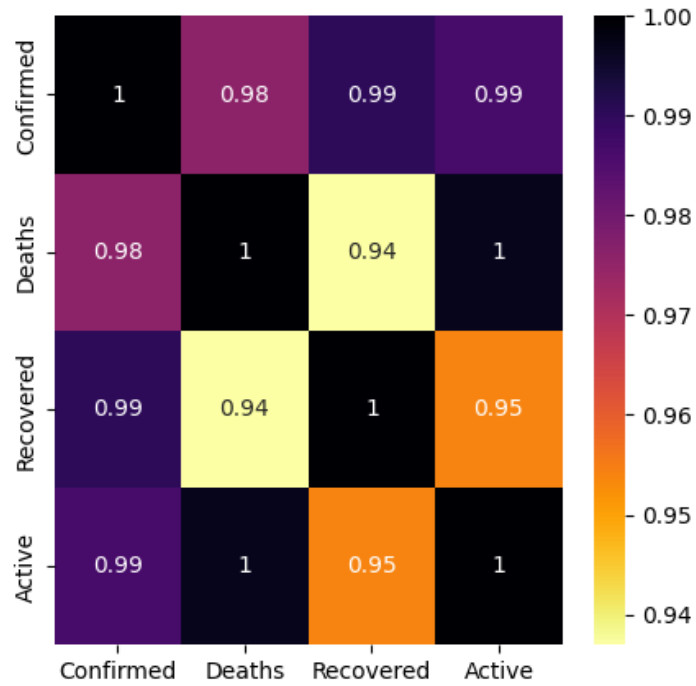


Overall recovered cases in World



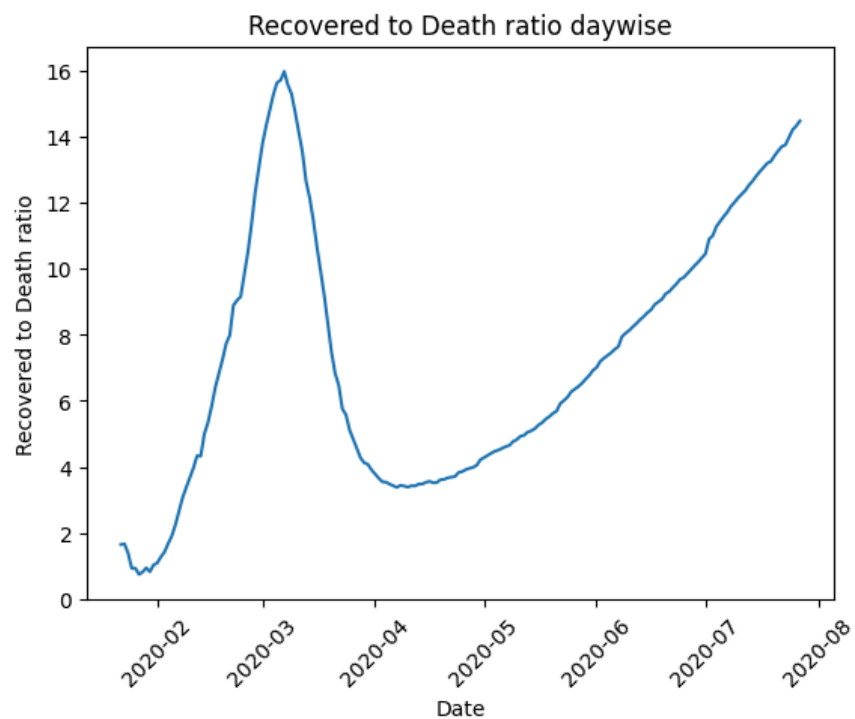
## Correlation Analysis

- **Positive correlation** between the increase in confirmed cases and the increase in other cases.
- Slightly higher impact on the number of recovered cases (0.99) compared to death cases (0.97).



## Recovered to death ratio

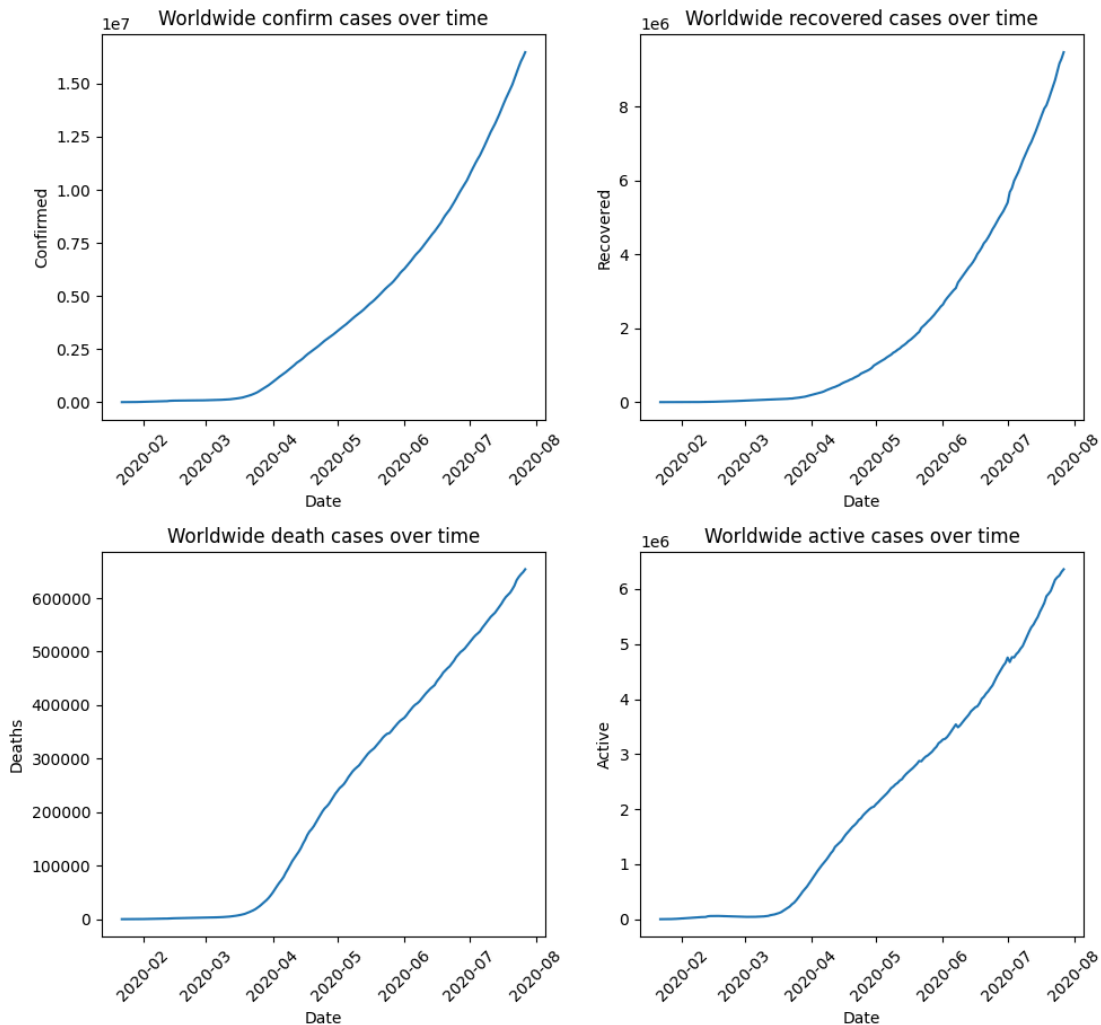
Initial increase, peaking at the start of March, followed by a big drop, then a steady increase beginning in April.



## Trends

- Confirmed, active, and death cases show an **upward trend**, indicating the widespread nature of Covid-19.
- Recovery cases also show an **increasing trend**, indicating a positive outcome.

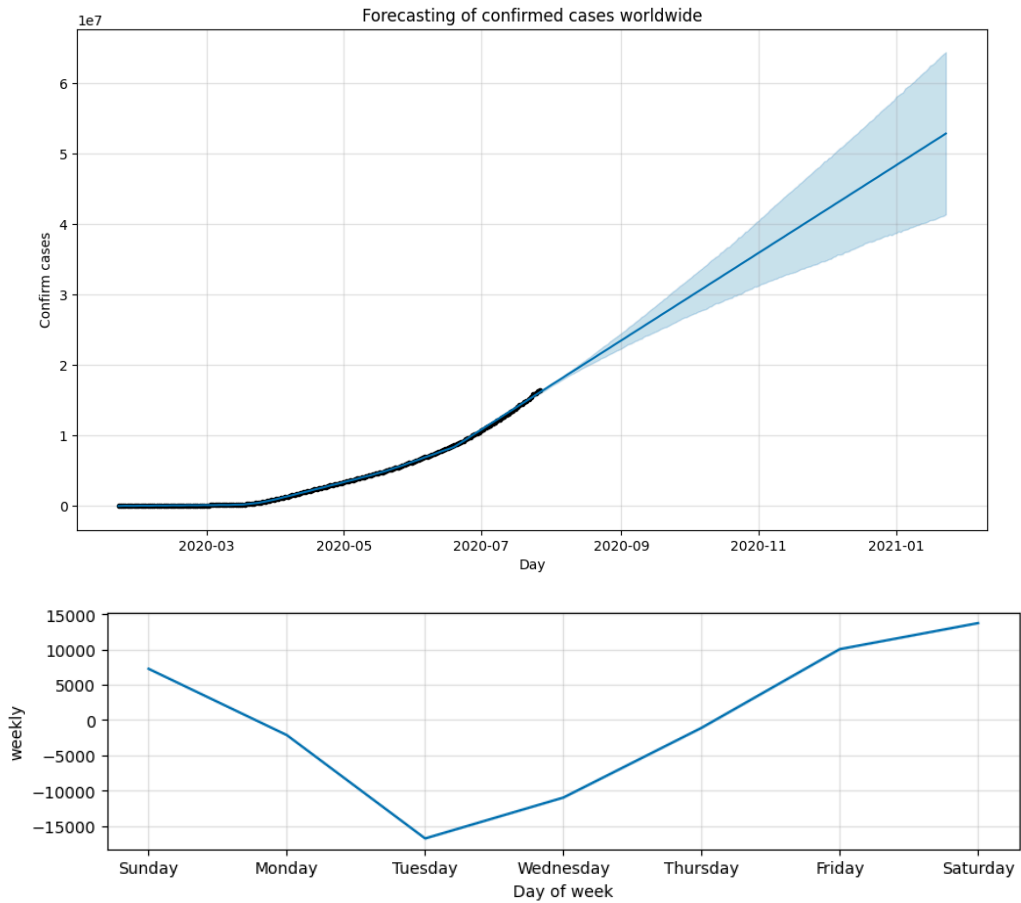
Trend in cases



## Time Series Forecasting

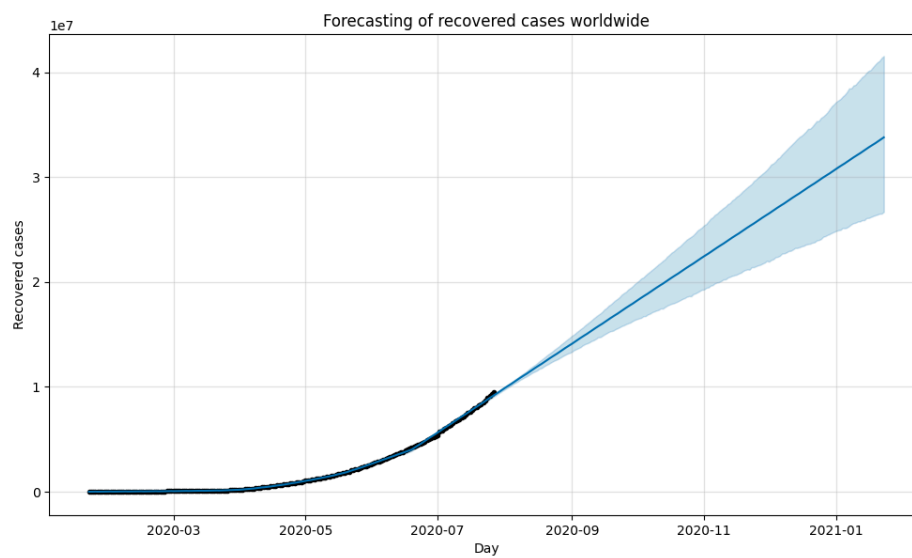
### Prophet Model Implementation

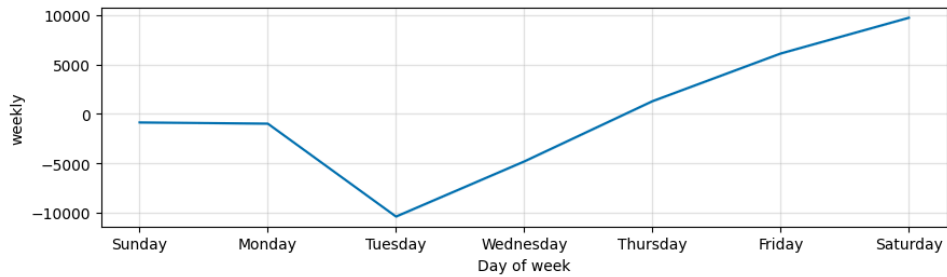
- Confirmed Cases:**
  - Forecast shows an increase in confirmed cases for the next 180 days.
  - Weekly trend: Dip in numbers till Tuesday, then an increase.



- **Active Cases:**

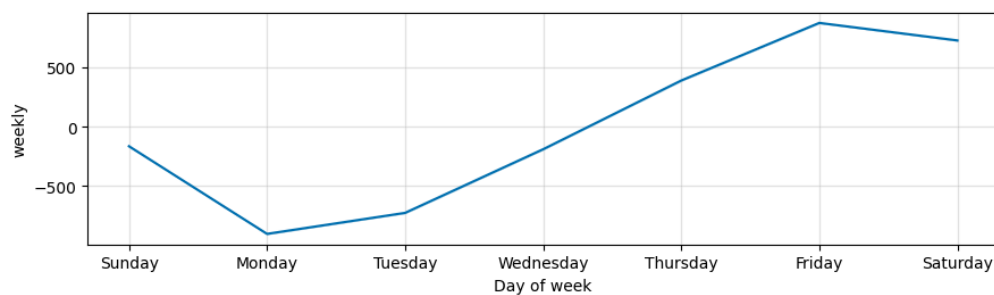
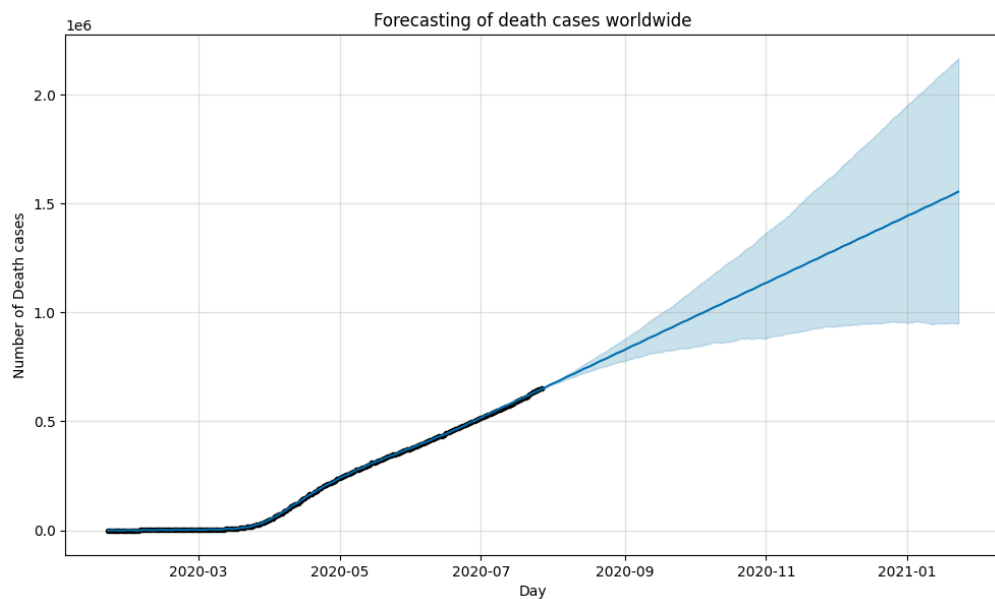
- Forecast shows an increase in active cases for the next 180 days.
- Weekly trend: No change on Monday, dip in numbers till Tuesday, then an increase.





- **Death Cases:**

- Forecast shows an increase in death cases for the next 180 days.
- Weekly trend: Dip on Monday, increase till Friday, then a small dip.



- **Recovered to Death Ratio:**

- The model was unable to accurately predict the recovered to death ratio.

## Conclusion

This Covid-19 analysis and forecasting report provides a comprehensive examination of the pandemic's progression up to July 27, 2020. Key findings include:

- US leads in confirmed, active, recovered, and death cases, with significant daily records.
- Global Trends show an upward trend in confirmed, active, and death cases, while recoveries are also increasing.
- Correlation Analysis reveals a positive correlation between confirmed cases and other case types, with a higher impact on recoveries.
- Recovery to Death Ratio shows initial fluctuation, stabilizing with a positive trend over time.
- Forecasting predicts continued growth in confirmed, active, and death cases over the next 180 days.

These findings highlight the widespread impact of Covid-19 and the importance of ongoing public health efforts to manage the pandemic effectively.