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Time Series Forecasting Using Facebook Fbprophet

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Abstract

Background: COVID-19 is a pandemic that has been recognized because the purpose of intense acute respiratory syndrome and become first detected on December 31, 2019 in Wuhan, China. It is responsible for two outbreaks, including Severe Acute Respiratory Syndrome (SARS)-CoV and Middle East Respiratory Syndrome (MERS)-CoV [1]. Accurately predicting the spread of COVID-19 is an analytical and challenging real-world challenge for the research community.

Objectives: As of 2021, there were over 20.5Cr cases of novel coronavirus infection (COVID-19) reported in 2020, including more than 40L deaths. However, there is no immediate and permanent cure for this dangerous epidemic, and researchers are trying to apply mathematical models or time series of epidemics to predict disease severity using international wide data [2].

Methodology: Morocco's open-source COVID-19 was identified by FbProphet in this study [3]. This study uses similar methods to predict COVID-19 for global epidemic data. We have implemented FbProphet, known as Facebook's open-source platform released in 2017, for time series forecasting using complementary models. The FbProphet non-linear trend is determined by daily, weekly, and yearly seasonality and resting effects.

Results and discussion: Acceptable frameworks are implemented in Python 3 and use Prophet models from public statsmodels or FbProphet packages. Active cases are the number of infected people under supervision. Globally the total active case is over 20.5 Cr. Many people have died as a result of the coronavirus. Therefore, it is necessary to analyze and predict deaths from the virus to identify cases in the future where governments can act as early as possible. Globally the total death case is over 40L. The proposed method has shown the RMSE value is 172220.03.

Conclusions and future work: WHO has declared COVID-19 a pandemic as it affects most counties and poses a serious threat to humanity. Here, we have analyzed and predicted disease using a widely accepted predictive model i.e., FbProphet. The resulting forecast results can be further improved by taking into account various variables such as population density, weather conditions, health care system, medical history and, so on.

References

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