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**TECHNOLOGICAL INSTITUTE OF THE PHILIPPINES**

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**COLLEGE OF ENGINEERING AND ARCHITECTURE**

**COMPUTER ENGINEERING DEPARTMENT**

**2ND SEMESTER SY 2023 - 2024**

FINAL PERIOD

**Emerging Technologies 2 in CpE**

CPE 019

CPE32S9

**Assignment 10.1 - Time-series Application Research**

Submitted to:

**Engr. Roman Richard**

Submitted on:

**April 29, 2024**

Submitted by:

**Perez, Cris John**

1. **Title of the Research paper** - COVID-19 Pandemic Prediction using Time Series Forecasting Models
2. **Author/s** - Naresh Kumar, Seba Susan
3. **Date of Publication** - October 15, 2020
4. **Conference** - 2020 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT) in Kharagpur, India
5. **The problem being discussed in the paper -** The problem being discussed in the paper is the need to accurately forecast the spread of the COVID-19 Pandemic to prepare healthcare services and facilities in different countries and to prevent future deaths.
6. **The motivation of the author/s for writing the paper -** The motivation of the authors for writing the paper was the continuous spread of COVID-19 and the increasing mortality rate in every country due to the virus, reaching numbers up to millions of people. Their goal of providing an understanding of the trends of the disease outbreak, and providing an epidemiological stage of information for the affected countries also motivated the author/s to write the paper.
7. **The solution presented in the paper -** The solution presented in the paper was the use of ARIMA and prophet time series forecasting models to predict the evolution of COVID-19.
8. **The methodology of the proposed study -** The methodology of the proposed study was first, the researchers used day-level information on COVID-19 spread for cumulative cases from the whole world and 10 mostly affected countries; US, Spain, Italy, France, Germany, Russia, Iran, United Kingdom, Turkey, and India. After that, the researchers utilized the temporal data of coronavirus spread from January 22, 2020, to May 20, 2020. Next, the researchers model the evolution of the COVID-19 outbreak and perform prediction using ARIMA and Prophet time series forecasting models. The effectiveness of the models was evaluated based on the mean absolute error, root mean square error, root relative squared error, and mean absolute percentage error.
9. **The result of the study -** The result of the study was that the ARIMA model is more effective for forecasting COVID-19 prevalence. The results of forecasting also exhibited the potential to assist governments in planning policies to contain the spread of the virus.
10. **My recommendations -** In my opinion, the paper was well-written and well-presented, therefore I do not have any recommendations.

**Reference**

Kumar, N., & Susan, S. (2020). COVID-19 Pandemic Prediction using Time Series Forecasting Models. *2020 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT), Kharagpur, India*, 1-7. IEEE. 10.1109/ICCCNT49239.2020.9225319.