ABSTRAK

COVID-19 merupakan suatu virus yang sedang hangat dibicarakan. Sejauh ini, COVID-19 telah memakan banyak korban jiwa dari berbagai penjuru dunia, termasuk juga Indonesia. Hal ini disebabkan karena indonesia yang merupakan negara dengan tingkat kepadatan tinggi di dunia, serta banyaknya destinasi wisata yang menjadi tujuan perjalanan wisatawan asing maupun lokal, sehingga mengakibatkan penularan virus COVID-19 semakin cepat. Dalam penelitian ini akan dilakukan prediksi jumlah kematian akibat COVID-19 di DIY dengan menggunakan metode *Autoregressive Integrated Moving Average* (ARIMA) dan di-implementasikan menggunakan bahasa pemrograman R. Data yang digunakan dalam penelitian bersumber dari *kaggle.com* dengan total 10694 *record*, data tersebut nantinya akan melalui proses *prepoccessing* dan diambil hanya untuk provinsi DIY. Proses penelitian akan divariasi untuk beberapa penggalan data, diantaranya penggalan 7 hari, penggalan 14 hari, penggalan 30 hari, penggalan 60 hari, penggalan 100 hari, selisih 1 hari data 30 hari, selisih 1 hari data 60 hari. Selain itu, terdapat variasi *testing* menggunakan 1-3 hari dan 1-5 hari sesudah penggalan. Proses pengukuran akurasi akan dilakukan menggunakan *Mean Absolute Percentage Error* (MAPE). Berdasarkan penelitian, diperoleh hasil terbaik ARIMA (2,1,0) dan ARIMA (3,1,0) pada penggalan data selisih 1 hari data 30 hari dengan pengukuran akurasi kesalahan (*error)* sebesar 8.33%. Model ARIMA (2,1,0) dapat diartikan bahwa, 2 menunjukkan nilai p atau derajat *Autoregressive* (AR), 1 menunjukkan nilai d atau merupakan proses *differencing* sebanyak 1 kali, dan 0 merupakan nilai q disebut *Moving Average* (MA). Nilai (p,d,q) juga berlaku pada model ARIMA (3,1,0).

Kata kunci: COVID-19, Prediksi, *Autoregressive Integrated Moving Average* (ARIMA), *Mean Absolute Percentage Error* (MAPE).

ABSTRACT

COVID-19 is a virus that is currently being discussed. So far, COVID-19 has claimed many lives from all over the world, including Indonesia. This is because Indonesia, which is a country with the high-density level in the world, and the number of tourist destinations that are travel destinations for foreign and local tourists, has resulted in the transmission of the COVID-19 virus getting faster. In this study, predictions of the number of deaths due to COVID-19 in DIY will be carried out using the Autoregressive Integrated Moving Average (ARIMA) method and implemented using the R programming language. The data used in the study is sourced from kaggle.com with a total of 10694 records. later it will go through a preprocessing process and be taken only for the DIY province. The research process will be varied for several pieces of data, including 7 days, 14 days, 30 days, 60 days, 100 days, the 1-day difference of 30 days, and the 1-day difference of 60 days. In addition, there are variations in testing using 1-3 days and 1-5 days after the cut. The accuracy measurement process will be carried out using Mean Absolute Percentage Error (MAPE). Based on the research, the best results were ARIMA (2,1,0) and ARIMA (3,1,0) in the 1-day difference of 30-day data fragments with an error measurement accuracy of 8.33%. The ARIMA model (2,1,0) can be interpreted that, 2 shows the p-value or degree of Autoregressive (AR), 1 indicates the value of d or is a differencing process 1 time, and 0 is the value of q called Moving Average (MA). The value (p,d,q) also applies to the ARIMA (3,1,0) model.

Keywords: COVID-19, Prediction, Autoregressive Integrated Moving Average (ARIMA), Mean Absolute Percentage Error (MAPE).