

PERBANDINGAN METODE *SEASONAL ARIMA* DAN METODE *TRIPLE EXPONENTIAL SMOOTHING HOLT-WINTERS* DALAM PERAMALAN JUMLAH KEDATANGAN DAN KEBERANGKATAN PENUMPANG PENERBANGAN DOMESTIK DI BANDARA INTERNASIONAL I GUSTI NGURAH RAI

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ABSTRAK

Adanya wabah yang diberi nama Corona Virus Disease 2019 (COVID-19) membuat pemerintah mengeluarkan himbauan untuk mengurangi mobilitas untuk mencegah penularan Covid-19. Himbauan mengurangi mobilitas tersebut berpengaruh pada sektor transportasi udara yaitu terjadi penurunan jumlah penumpang utamanya di bandara Internasional I Gusti Ngurah Rai Bali. Pada saat yang sama maret 2020 terjadi penurunan sebesar 34.7% jika dibandingkan pada maret 2019. Untuk menyeimbangkan jumlah penumpang dengan fasilitas dan pelayanan yang disediakan dalam upaya pencegahan penyebaran covid-19 perlunya dilakukan peramalan jumlah penumpang. Penelitian ini menggunakan Metode *Seasonal ARIMA* dan *Triple Exponential Smoothing Holt-Winters* dalam peramalan jumlah penumpang domestik di Bandara Internasional I Gusti Ngurah Rai. Penelitian ini bertujuan untuk mengetahui model *Seasonal ARIMA* terbaik dan model *Triple Eksponensial Smoothing Holt-Winters* terbaik serta mengetahui perbandingan kedua metode tersebut dalam peramalan jumlah penumpang domestik di Bandara Internasional I Gusti Ngurah Rai. Hasil Penelitian menunjukkan bahwa untuk data kedatangan penumpang domestik didapat model *Seasonal ARIMA* terbaik yaitu model $ARIMA(0,1,0)(1,0,0)^{12}$ dan model multiplikatif sebagai model terbaik metode *Holt-Winters*. Untuk data jumlah keberangkatan penumpang didapat model *Seasonal ARIMA* terbaik yaitu model $ARIMA(0,1,0)(1,0,0)^{12}$ dan model multiplikatif sebagai model terbaik metode *Holt-Winters*. Didapatkan model terbaik metode *Seasonal ARIMA* memiliki nilai *error* yang lebih baik untuk data jumlah kedatangan maupun keberangkatan penumpang domestik di Bandara Internasional I Gusti Ngurah Rai.

Kata kunci: *Seasonal ARIMA*, *Triple Exponential Smoothing Holt-Winters*, Jumlah Penumpang, Covid-19

COMPARISON OF SEASONAL ARIMA METHOD AND TRIPLE EXPONENTIAL SMOOTHING HOLT-WINTERS METHOD IN FORECASTING THE NUMBER OF ARRIVALS AND DEPARTURES OF DOMESTIC FLIGHT PASSENGERS AT I GUSTI NGURAH RAI INTERNATIONAL AIRPORT

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ABSTRACT

The existence of an outbreak called Corona Virus Disease 2019 (COVID-19) made the government issue an appeal to reduce mobility to prevent the transmission of Covid-19. The call to reduce mobility has an effect on the air transportation sector, namely a decrease in the number of passengers, especially at Bali's I Gusti Ngurah Rai International airport. At the same time in March 2020 there was a decrease of 34.7% when compared to March 2019. To balance the number of passengers with the facilities and services provided in an effort to prevent the spread of Covid-19, it is necessary to forecast the number of passengers. This study used the Seasonal ARIMA and Triple Exponential Smoothing Holt-Winters method in forecasting the number of domestic passengers at I Gusti Ngurah Rai International Airport. This study aims to find out the best Seasonal ARIMA model and the best Holt-Winters Smoothing Triple Exponential model and find out the comparison of the two methods in forecasting the number of domestic passengers at I Gusti Ngurah Rai International Airport. The results showed that for domestic passenger arrival data, the best Seasonal ARIMA model was obtained, namely the $ARIMA(0,1,0)(1,0,0)^{12}$ multiplicative model and model as the best model of the Holt-Winters method. For data on the number of passenger departures, the best Seasonal ARIMA model is obtained, namely the multiplicative model and model as the best model of the $ARIMA(0,1,0)(1,0,0)^{12}$ Holt-Winters method. It was found that the best model of the Seasonal ARIMA method has a better error value for data on the number of arrivals and departures of domestic passengers at I Gusti Ngurah Rai International Airport.

Keywords: Covid -19, Total Passenger, SARIMA, Holt-Winters