

**Universiti Teknologi Mara**

**Comparison Between Fuzzy Time Series  
(FTS) Model and Double Exponential  
Smoothing (DES) Model in Predicting the  
Number of Road Traffic Accidents**

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**Report submitted in fulfillment of the requirements for  
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## **STUDENT'S DECLARATION**

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.



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## ABSTRACT

Road traffic accident is an accident which occurred or originated on a way or street open to public traffic. According to Tang Ruxyn (2017), Malaysia has been the highest ranked of emerging country with the riskiest road and he also recorded that the death rate of road traffic accidents in Malaysia was about 7,000 to 8,000 annually. This accident resulted in one or more persons being killed or injured, and at least one moving vehicle was involved. An integrated approach to reduce road crashes is very important and forecasting the number of road traffic accidents may help in this issue. This study uses two models namely Fuzzy Time Series (FTS) model and Double Exponential Smoothing (DES) model to compare the error measure performance in predicting number of road traffic accidents in Kuala Terengganu. Criteria for the best forecasting model were also being investigated. Data of road traffic accidents from year 2016 until year 2019 was used. Data from year 2016 to 2018 was used in model development and the rest were used as model validation. Result showed that the FTS method had the smallest values of MSE, RMSE, and MAPE compared to DES method. It concludes that FTS method is a good model to predict the number of road traffic accidents because it is more accurate and reliable.

**Keywords:** Road traffic accidents, Fuzzy Time Series, Double Exponential Smoothing.

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