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PREFACE

Cauchy is a national journal published by Mathematics Department, Science and Technology Faculty, Maulana Malik Ibrahim State Islamic University of Malang. This is the second issue of this year. It contains 6 (six) article from all over the country, not only from local area of East Java. Those articles covered numerical analysis, statistics, mathematical analysis, and decision making. This issue was authored by 15 authors and co-authors.

In the first article, the author discussed a discrete numerical scheme of modified Leslie-Gower with harvesting model. From this paper, a discrete numerical scheme of modified Leslie-Gower with harvesting model has been investigated. The author used Euler-method to discretize the model. It is shown that the discrete model is dynamically consistent with its continuous model only for relatively small step-size.

The second article discussed about comparing inverse distance weighted and natural neighbour interpolation method on air temperature in Malang. The research concluded that Based on the RMSE value, the IDW Interpolation Method with the power parameter 2 yields much more accurate prediction values than the Natural Neighbor Interpolation Method. Areas with low air temperatures are located around Kota Batu and Kecamatan Poncokusumo, while areas with high temperatures are in the vicinity of Malang and Bantur Subdistricts.

The third article, entitled "Fitting the First Birth Interval in Indonesia Using Weibull Proportional Hazards Model" elaborated that although the KM method and logrank test are commonly used in the applications of survival analysis, they cannot account the effects of multiple covariates on the survival time simultaneously. Therefore, a typical survival regression model is needed to overcome such drawback. In this article, the PH assumption was assumed to the data. However, this assumption was not checked yet. The author suggested for further research to account for this by using a graphical method or the advantages of fit tests. The author also suggested to consider the alternative models, such as accelerated failure time (aft) model or Cox extended model.

The fourth article emphasized the discussion to the solution of elliptic equations using positive definite matrix coefficient. The research came to the result that by determining the radial solution, the used method is able to solve the equation into ordinary differential equations.

The fifth article discussed on the selection of ideal contraceptive tool using hybrid entropy-topsis method. The research obtained work rating matrix. The final determination entropy value was used to rank alternatives using the hybrid Entropy-TOPSIS method. The ranking results indicate the pills and implants as the alternative selection of the ideal contraceptives.

In the last article, the authors take advantage of Bayesian structural equation modeling approach for the construction of patient loyalty model. In this research, the author used the analysis technique of Bayesian SEM approach to analyze the relationship between service quality and patient satisfaction to patient loyalty at Puskesmas in Padang City. Based on the model, it is found that the service quality and patient satisfaction is significantly correlated to the patient loyalty on health services and the quality of service and patient satisfaction is an indicator to measure patient loyalty at Puskesmas in Padang City.