Abstract

The School of Computing at Telkom University has four Expertise Groups which is divided into four which students will take in their lectures. By choosing the Expertise Group, it will be influential in choosing elective courses, proposal classes, and raising the topic of the Final Project. There are still many students who are still having difficulty in determining the Expertise Group to be selected and finally only choose based on the most chosen or only follow the choice of friends without seeing their own potential and abilities. If this continues, it can have an impact on delays in graduating on time, then it will affect the accreditation assessment and graduation year achievement, in the School of Computing study program if students who do not graduate on time continue to increase. Therefore, it is necessary to have a system that can predict the selection of the Expertise Group of School of Computing students based on their academic scores. That is by using the Fuzzy K-Nearest Neighbor classification algorithm, the choice of this algorithm in addition to determining the class based on the nearest neighbor, can also give consideration to ambiguous data because of the weighting value in each class. In this study, various tests were also carried out on the model to be made to produce the best model, one of which was by comparing the Fuzzy K-Nearest Neighbor with Naïve Bayes and Decision Tree (C4.5) which are commonly used classification methods. The result is that the model made using Fuzzy K-Nearest Neighbor has an accuracy value of 72% in the case of imbalance data, 62% in the case of applying the undersampling technique, and 56% in the case of applying oversampling. Based on experiments with the other two algorithms, it was found that the Fuzzy K-Nearest Neighbor has a greater accuracy value in the case of imbalance data (scenario 1) and the case of applying undersampling (scenario 2), but in the case of applying oversampling (scenario 3) it has low accuracy compared to with both algorithms.

Keywords: School of Computing, Expertise Group, Classification, Fuzzy K-Nearest Neighbor