ABSTRACT

Comparison of methods is an important thing that needs to be done to help determine the most effective and accurate algorithm to solve a problem. In this study, testing will be carried out by comparing 2 methods of data mining techniques, namely the K-Nearest Neighbor algorithm and Neural Network to find out which algorithm produces the best level of accuracy in predicting student graduation. Testing was conducted using the RapidMiner software and the Python programming language. The results of testing the K-Nearest Neighbor algorithm with RapidMiner software, yielded an accuracy of 52.63%, precision of 38.46%, recall of 83.33%, and an AUC value of 0.795. Testing with the Python programming language resulted in an accuracy of 57.89%, precision of 38.46%, recall of 100%, and an f1-score of 55.55%. The results of testing the Neural Network algorithm with the backpropagation training method using the Rapidminer software show an accuracy of 63.16%, precision of 80.00%, recall of 61.54% and AUC value of 0.577. Testing with the python programming language, showed 73.68% accuracy, 79.68% precision, 83.33% recall and 80.00% f1-score. The results of this study indicate that the Neural Network algorithm with the backpropagation training method has a better level of accuracy than the K-Nearest Neighbor algorithm in predicting graduation in 2014 informatics students.

Keywords : *Comparison, Data Mining, K-Nearest Neighbor, Neural Network, Student graduation*

ABSTRAK

Komparasi metode merupakan suatu hal penting yang perlu dilakukan untuk dapat membantu dalam menentukan algoritma yang paling efektif dan akurat untuk menyelesaikan suatu masalah. Dalam penelitian ini, pengujian akan dilakukan dengan cara mengkomparasikan 2 metode teknik *data mining* yaitu algoritma *K-Nearest Neighbor* dan *Neural Network* untuk mengetahui algoritma yang menghasilkan tingkat akurasi paling baik dalam memprediksi kelulusan mahasiswa. Pengujian dilakukan dengan *software Rapidminer* dan bahasa pemrograman *python*. Hasil pengujian algoritma *K-Nearest Neighbor* menggunakan *software Rapidminer* menghasilkan akurasi 52.63%, *precision* 38.46%, *recall* 83.33% dan nilai AUC 0.795. Pengujian dengan bahasa pemrograman *python*, menunjukan akurasi 57.89%, *precision* 38.46%, *recall* 100% dan f1-score 55.55%. Hasil pengujian algoritma *Neural Network* dengan metode pelatihan *backpropagation* menggunakan *software Rapidminer* menunjukan akurasi 63.16%, *precision* 80.00%, *recall* 61.54% dan nilai AUC 0.577. Pengujian dengan bahasa pemrograman *python*, menunjukan akurasi 73.68%, *precision* 79.68%, *recall* 83.33% dan f1-score 80.00%. Hasil dari penelitian ini menunjukan bahwa algoritma *Neural Network* dengan metode pelatihan *backpropagation* memiliki tingkat akurasi lebih baik daripada algoritma *K-Nearest Neighbor* dalam memprediksi kelulusan mahasiswa.

Kata Kunci : *Komparasi, Data Mining*, *K-Nearest Neighbor*, *Neural Network, Kelulusan mahasiswa*