Abstract

Indeed the Quran is the main guideline for Muslims. The interesting thing in the Quran is that one verse of the Quran can be classified into more than one topic of discussion in the Quran, for example one verse can discuss about prayer and faith or about arkanul Islam and religions, which is called multilabel case. Of course, to find out the topic of Quranic verse discussion can be asked to someone who certainly understand the division, but can not be denied either from place, time, and limited resources. Therefore it takes digitalization for multilabel classification of Quran verses based on the topic of discussion, one of them with machine learning approach.

One method of machine learning in the realm of text classification is Bayesian Networks (BN). BN is one of the decision selection methods that can model the interrelationship between variables in the probabilistic graph model. BN offers solutions that can handle small and incomplete datasets, causal relationships between variables, and uncertainty. In knowing information connectedness between variables used Mutual Information and the division of dataset with K-Fold Cross Validation, which divides it into five fold. Evaluation system that has been built using the method of Hamming Loss. The multilabel classification system in this verse of the Quran produces an average value of Hamming Loss of 0.1007784.

Keywords: *Multilabel Classification, Al Quran Verses, Bayesian Networks, Machine Learning, Mutual Information, K-fold cross validation, Hamming Loss*