

ABSTRACT

DECISION MAKING USING FUZZY DECISION TREE ALGORITHM

C4.5

by

Dhias Alviani

24010117120006

Data mining is a technology for exploring complex and large data to find the useful patterns. One of the data mining processing technique is classification. Decision tree is a data mining technique that can be used to convert a lot of data into a decision. The purpose of this final project is to determine the decision rules on the data obtained from the Heart Failure Prediction Dataset that contain the patient's examination result from various observations. The method used is literature review and case study simulation on the datasets of fuzzy decision tree which is a combination of two methods, fuzzy and decision tree. The fuzzy concept is applied to optimize the attributes in the dataset, then these attributes are used to determine the decision rules with a decision tree using the C4.5 algorithm. The result shows that there are 47 decision rules to determine the patient's decision who have heart failure or normal based on the attributes obtained from the data. Fuzzy decision tree is enable to be used with linguistic and numerical values using fuzzy during construction or when the classification of new cases. Fuzzy decision tree can improve the ability to understand decision tree when using quantitative attributes with the addition of fuzzification which aims to determine decision rules from numerical data so that it becomes better because it uses membership degrees in fuzzy concept.

Keywords: Data mining, decision tree, fuzzy decision tree, decision rules, C4.5 algorithm