Abstract

Decision tree is a dominating method of pattern classification. These trees amongst the machine learning techniques have an aptitude to handle and construe logical rules of classification. The general Decision trees face the problem on deciding boundaries in classification. A fuzzy supervised learning in Quest (SLIQ) decision tree (FS-DT) algorithm aimed at constructing a fuzzy decision boundary instead of puny decision boundaries. The intended work deals with a fuzzy supervised learning in Quest (SLIQ) decision tree (FS-DT) algorithm by calculating the Gini index at the points where the class information changes. This algorithm helps in predicting benign and malignant breast cancer cases more effectively. The breast cancer mammographic mass dataset (BI-RADS) was taken from UCI Machine Learning Repository, center for machine learning and intelligent systems. A 3-fold cross validation of train data and test data on BI-RADS dataset was used and the proposed Fuzzy SLIQ Decision Tree algorithm was applied on it. The proposed method’s performance was superior to earlier techniques. The examined results in partitioning the benign and malignant cases using Fuzzy SLIQ Decision Tree is more promising with a classification accuracy of 81.4% which is more prominent then many of the existing classifier techniques which used BI-RADS dataset in
classification of breast cancer cases.

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Index Terms

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Keywords

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GINI Index

Malignant

Mammographic-mass