

## Abstract

In this final project, a *clustering* analysis will be performed to a data set of plane-examine results. *Fuzzy Clustering Means* is a method that can discover the structure of a data sets and group them into clusters. The clusters will be recognized as 'layak' cluster and 'tidak layak' cluster. The 'layak' class in the data source *means* that the plane had passed the 48 hours examination and worthed to be flown. The class 'tidak layak' *means* that the plane wasn't yet passed the 48 hours examination and not worthed to be flown.

*Fuzzy C-Means* allows an object to be part of some clusters simultaneously, with different levels of membership. The advantage of the FCM method is to discover the structure/pattern in a data sets, so the owner of the data may use them into another applications like classification, pattern recognition, etc. The *clustering* process will take 100 pieces of data, and the classification process will take 60 pieces of data. The quality of the *clustering* results will be measured with the XB-Index method. XB-Index measures the density of the intra cluster and the space between clusters. From several experiments that have been conducted, the best parameters to make an optimal clusters are : the number of clusters ( $c$ ) = 2, *fuzzy* weight degrees ( $w$ ) = 3, maximum iteration ( $It$ ) = 200, and error score ( $\xi$ ) =  $10^{-5}$  which the XB-Index's score is 2.9444e-005.

**Keywords** : clustering analysis, fuzzy c-means, xb-index, classification, accuracy