IMPROVEMENT OF CLUSTERING BY MODIFICATION OF DEGREES OF FUZZINESS

Venkataramana B.*, Padmasree L.**, Rao M.S.***, Latha D.****, Ganesan G.****

*Holy Mary Institute of Technology, Bogaram, Telangana, India
** VNR Vignana Jyothi Institute of Engineering & Technology,
Bachupally, Telangana, India
*** Jawaharlal Nehru Technological University,
Kukatpally, Telangana, India
**** Adikavi Nannaya University, Rajahmundry, Andhra Pradesh, India

Due to fast growth in technology, conventional classification methods are limited in their ability to support medical diagnostics without introducing considerable ambiguities. Since the conditions are vague in medicine the fuzzy methods may be more helpful rather than crisp ones. Classification depends on number of attributes, number of clusters to be classified and index of the clustering algorithm. Because it is not possible to reduce number of attributes and clusters, therefore changing the index value is a choice to improve performance. The objective of this paper is to analyze the improvement in terms of number of iterations taken, algorithm performance and percentage of correctness of Thyroid samples and wine samples classification by modifying the index of the algorithm.

Keywords: classification, fuzzy clustering, fuzzy c-means, index.

1. Introduction

Clustering is one of the important phenomena in soft computing which creates clusters of most identical featured objects in a group of data. A cluster of objects can be treated collectively as one group and also may be considered as form of data classification. Clustering data streams attracted many researches since the applications that generate data streams have become more popular. Clustering is also often called as Classification. Clustering is an important tool in data analysis, image processing, data mining, pattern recognition, medical diagnosis and etc. [1].

Thyroid gland is one of the largest of endocrine gland, weighing 15-20 g in adults. Thyroid secretes two major hormones thyroxine and tri-idothyronine, commonly called t4 and t3 respectively. Thyroid secretion is controlled primarily by thyroid stimulating hormone [TSH] secreted by pituitary gland. Thyroid gland also secretes calcitonin a hormone involved in calcium metabolism. It consists of large number of closed follicles that are filled with a secretory substance called colloid and lined by cuboidal epithelium. Thyroid gland which is in a butterfly-shape is one of the largest endocrine glands located in the lower front of the neck [2]. This gland produces