Abstract

This research paper proposed agent based framework for portfolio management using non-hierarchical clustering method. The framework included various agents such as data agent, clustering agent, ranking agent, portfolio manager and user agent. The data agent collected financial ratio of Nifty 50 companies from financial database. Clustering agents generated clusters and DB index computed to find optimum cluster size of each method. Validation agent evaluated the performance of k-means, k-medoids and fast k-means using intra-class inertia. Clusters generated by k-means used for investment and portfolio analysis using Markowitz model. This research helped to assemble a diversified portfolio of stocks with the use of clustering.
Agent based Stock Clustering for Efficient Portfolio Management

- D. L. Davies and W. Bouldin. 1979 "A cluster separation measure"; IEEE PAMI, vol 1, pp. 224-227
- M. Kelly, "All their eggs in one basket: portfolio diversification of US households"; Journal of Economic Behavior and Organization, vol 27, pp. 87-96
- P. Baser and J. R. Saini. 2013 "k-Means analysis of Nifty companies for an
investment perspective" Int J Data Mining Emer Technol, vol 3 issue 1, pp. 16–22.

Index Terms

Computer Science  Information Sciences

Keywords

Clustering  Data mining (DM)  Davis-Bouldin (DB) Index  Dunn Index  k-means k-medoids
Partitioning Around Medoids(PAM)
Silhouette index