

Multi-Criteria Inventory Classification Process Based on Logical Analysis of Data

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Abstract : Although inventories are considered as stocks of money sitting on shelves, they are needed in order to secure a constant and continuous production. Therefore, companies need to have control over the amount of inventory in order to find the balance between excessive and shortage of inventory. The classification of items according to certain criteria such as the price, the usage rate and the lead time before arrival allows any company to concentrate its investment in inventory according to certain ranking or priority of items. This makes the decision making process for inventory management easier and more justifiable. The purpose of this paper is to present a new approach for the classification of new items based on the already existing criteria. This approach is called the Logical Analysis of Data (LAD). It is used in this paper to assist the process of ABC items classification based on multiple criteria. LAD is a data mining technique based on Boolean theory that is used for pattern recognition. This technique has been tested in medicine, industry, credit risk analysis, and engineering with remarkable results. An application on ABC inventory classification is presented for the first time, and the results are compared with those obtained when using the well-known AHP technique and the ANN technique. The results show that LAD presented very good classification accuracy.

Keywords : ABC multi-criteria inventory classification, inventory management, multi-class LAD model, multi-criteria classification

Conference Title : ICCIE 2015 : International Conference on Computers and Industrial Engineering

Conference Location : San Francisco, United States

Conference Dates : June 07-08, 2015