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io-port 06074732 Fan, Li-lin; Wang, Juan Clustering algorithms for mixed attributes based on rough set.

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Summary: Objects are strictly divided into clusters in the conventional algorithms; however, most of the time, the object boundary cannot be strictly classified. The rough set based k-means clustering algorithm and leader clustering algorithm divide the data object into a cluster's upper-bound or lower-bound using a rough set, which provides a new perspective of dealing with uncertainty, and solve the problem of uncertain boundary region. The problem is that both of the two algorithms cannot deal with mixed valued data, and clustering results significantly depend on the initial value. A definition of the distance for mixed valued data is introduced in this paper, an improved method is put forward for the selection of the initial value, and a clustering algorithm for mixed valued data based on rough sets is given. Finally, a simulation experiment is carried out. Simulation results show, under the uncertain situation regarding the cluster number, that the clustering accuracy of the algorithm is significantly improved compared to the traditional k-means algorithm.

Keywords: clustering; rough set; $k\mbox{-means}$ algorithm; mixed attribute doi:10.3724/SP.J.1087.2010.03377