Implement Symbolic Data Clustering on Smart Phone

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Clustering algorithms have been widely used such as pattern recognition, data mining and machine learning, etc. In this paper, we focus on the partitioning-based clustering approach. About partitioning-based clustering Bezdek (1980) firstly proposed an improved K-means clustering algorithm; namely, fuzzy c-means (FCM) clustering algorithm for the single-valued data. On the other hand, interval fuzzy c-means (IFCM) clustering method is one common clustering approach proposed for symbolic interval-valued data. That is, Carvalho (2007) firstly extended the FCM to IFCM clustering. However, it still has noisy and outliers problems. For the extension on the outliers problem, Jeng et al., (2010) proposed robust interval competitive agglomeration clustering algorithm to overcome outliers. At the same time, Chuang et al. (2013) proposed interval PCM (IPCM) clustering algorithm and interval FPCM (IFPCM) clustering algorithm to extend IFCM. In this paper, we proposed new interval PFCM (IPFCM) clustering algorithm to overcome the IFCM, IPCM and IFPCM clustering algorithm for the symbolic interval data clustering in noisy and outlier environments. For the further App’s developement with SDA, we firstly use C# language to develop the improved FCM clustering algorithm windows mobile software on the Windows Mobile systems with .NET Compact Framework. Besides, the Support Vector Machine on the Windows Mobile systems with .NET Compact Framework can be found on Liao (2010). From the implement results, the improved FCM clustering algorithms have the fast convergence on the Windows Mobile systems. That is, we successfully integrate symbolic clustering algorithm on smart phone.

References


