

Review of Basic Local Searches for Solving the Minimum Sum-of-Squares Clustering Problem

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Abstract

This paper presents a review of the well-known K-means, H-means, and J-means heuristics, and their variants, that are used to solve the minimum sum-of-squares clustering problem. We then develop two new local searches that combine these heuristics in a nested and sequential structure, also referred to as variable neighborhood descent. In order to show how these local searches can be implemented within a metaheuristic framework, we apply the new heuristics in the local improvement step of two variable neighborhood search (VNS) procedures. Computational experiments are carried out which suggest that this new and simple application of VNS is comparable to the state of the art.