An Iterated Local Search Algorithm for Traveling Repairman Problem with Profits

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Abstract

Traveling repairman problem with profits (TRPP) is a generalization of the traveling repairman problem (TRP). TRPP generally arises as a routing problem on relief supply. In TRPP, a time-dependent profit is associated with each node, and there is no obligation to visit all nodes. The objective of the problem is to maximize total collected revenue. In this context, a multi-start iterated local search algorithm in which the variable neighborhood descent algorithm (VND) is integrated with an adaptive perturbation mechanism is developed for the solution of the TRPP. The performance of the developed algorithm is tested on randomly generated problem instances. The results indicate the effectiveness of the proposed approach.

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