

A New Heuristic Algorithm for Maximization Total Demands of Nodes and Number of Covered Nodes Simultaneously

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Abstract : The maximal covering location problem (MCLP) was originally developed to determine a set of facility locations which would maximize the total customers' demand serviced by the facilities within a predetermined critical service criterion. However, on some problems that differences between the demand nodes are covered or the number of nodes each node is large, the method of solving MCLP may ignore these differences. In this paper, Heuristic solution based on the ranking of demands in each node and the number of nodes covered by each node according to a predetermined critical value is proposed. The output of this method is to maximize total demands of nodes and number of covered nodes, simultaneously. Furthermore, by providing an example, the solution algorithm is described and its results are compared with Greedy and Lagrange algorithms. Also, the results of the algorithm to solve the larger problem sizes that compared with other methods are provided. A summary and future works conclude the paper.

Keywords : heuristic solution, maximal covering location problem, ranking, set covering

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