
A new algorithm for finding the basic feasible solution for bottleneck transportation problem

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Transportation problems are a common part of the category of linear programming problems. The cost of transportation is typically the basis on which the transportation problem is considered. But it is not enough to consider only the cost of transportation in goods transportation. Accordingly, the purpose of this paper is to discuss another important factor, which is transportation time, through the bottleneck transportation problem (BTP). The main purpose of BTP is to minimize the maximum time for all suppliers to reach the destination by transport. Meanwhile, many researchers have presented algorithms that provide an efficient initial solution that satisfies the above objective. Accordingly, this paper proposes a new algorithm to obtain a better basic feasible solution (BFS) for the bottleneck transportation problem. For that, we introduced a new method that is based on the average times of each column and row of the transportation problem. The purpose of this is to obtain basic solutions by the proposed method, which considers the order in which the average value of each column and row calculated in this way decreases. Accordingly, the proposed method was used to determine the basic solutions for the bottleneck transportation problems. Also, the obtained solutions were compared with the existing methods, and the effectiveness of the proposed method was determined. According to the obtained results, as the final conclusion, a basic solution to balanced and unbalanced bottleneck transport problems was obtained, and it was discussed whether it is the optimal solution.

Keywords: Bottleneck transportation problems, Basic feasible Solution, Optimum Solution, Time Minimize

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