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Transportation problem

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1. INTRODUCTION

A transportation problem is one of the earliest and most important applications of linear programming

problem. Which can be applied for different sources f supply to different destination of demand in

such a way that the total transportation cost should be minimized. Usually, the initial basic feasible

solution of any transportation problem is obtained by using well known methods such as North West

Corner Method or Least-Cost Method or Vogel's Approximation Method, and then finally the

optimality of the given transportation problem is checked by MODI.

Afterwards many researchers provide many methods to solve transportation problem. Some of the

important related works the current research has deal with are: 'Modified Vogel's Approximation

Method for Unbalance Transportation Problem',

[1] and S.M. Abul Kalam

[2] by N. Balakrishnan. 'An Improved Vogel's

[3], . Prof. Reena. G. Patel et. al.

[4]developed the method is very helpful as having less Approximation method

[5] by Serder Korukogu and Serkan Balli., 'A new approach for find an

Optimal Solution for Transportation Problems',

[6] by Sudhakar VJ et.al, A New Approach to Solve

Deshmukh computations and also required the short time of period for getting the optimal solution.

In this paper we introduce Method for solving transportation problem which is very simple, easy to

understand and helpful for decision making and it gives minimum solution of transportation problem.

The method developed here ensures a solution which is very closer to the optimal solution.

Fundamentals and scope

In the supply chain environment, several problems related to transportation

and others apparently unrelated can be formulated and solved by the technique used

for the typical transportation problem, frequently simply denoted by the initials TP1

Besides the TP proper, we shall address: the (simple) production scheduling; the

transshipment problem; and the assignment problem (AP). These problems can be

solved by their own algorithms: the TP, the production scheduling and the

transshipment, by the "stepping-stone" method; and the AP by the Hungarian

method. As all these problems are particular cases of Linear Programming (LP), the

problems will be presented and then formulated as LP problems. Indeed, with the

current availability of high quality LP software, it looks unnecessary to go into the

details of those other methods.

The general goal is to "transport" (whatever that may be) goods to the

customers at minimum global cost of transportation, according to the unit costs of

transportation (certainly according to distance, etc.) from the sources to the

destinations.

The problems mentioned are dealt with in the following sections, mainly

based on examples.

2. The Transportation Problem

The Transportation Problem (TP) arises from the need of programming th

ALGORITHM OF PROPOSED METHOD

Step 1:- Examine whether the transportation problem is balanced or not. If it is balanced then go to

next step.

Step 2:- Find the smallest cost from each row and subtract the smallest cost from each element of the

row

Step 3 Find the smallest cost from each column and subtract the smallest cost from each element of

the column

Step 4:- Find the difference between minimum and next minimum in each row or column

Step 5 From that select the maximum value. From the selected row/column we need to allocate the

minimum of supply/demand in the minimum element of the row or column. Eliminate by deleting the

columns or rows corresponding to where the supply or demand is satisfied.

Step 6:- Repeating the step 4 to step 5 until satisfaction of all the supply and demand is met.

Step 7:-Now total minimum cost is calculated as sum of the product of cost and corresponding

allocate value of supply /demand.

CONCLUSION

The proposed method is an attractive method which is very simple, easy to understand and gives

result exactly or even lesser to VAM method. All necessary qualities of being time efficient, easy

applicability etc., forms the core of being implemented successfully.

Also in this paper we have described the comparison between the transportation methods (Table: 11)

and the proposed Method also the solution is same as that MODI'S method.

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