NEW EFFECTIVE METHOD FOR SOLVING ASSIGNMENT PROBLEMS IN LINEAR PROGRAMMING

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The Assignment problem represents a specific type of linear programming transportation problem. The goal is to allocate a specific number of resources to an equal number of activities while minimizing costs or maximizing profits. It's crucial to address this topic in real life situations for example production planning, particular job tasks, economic etc. In our analysis, we have examined both the conventional method (Hungarian method) and the past proposed methods. After thoroughly examining these methods, I have put forward a novel alternative approach for directly determining an optimal solution for an Assignment problem. We tested the newly proposed method using several numerical examples and compared the results with the standard method. The first and second step row reduction and column reduction in the proposed method are similar to the Hungarian method beginning steps. After that I introduced some new steps different from the Hungarian method to solve Assignment problems in Linear Programming. The comparison results indicate that both methods produce the same optimal solution. However, the alternative method achieved the optimal solution in fewer steps, results time saving. The best thing about this approach is that it only involves basic arithmetic and logical computations. The data was analyzed and resolved using statistical software "TORA", yielding comparable results. The numerical examples clearly demonstrate the effectiveness of the new method. This new method ensures that the solution adheres to the constraints of linear programming while offering enhanced scalability and applicability to a wider range of real-world problems, such as job scheduling and transportation logistics. This novel method not only improves computational efficiency but also enhances flexibility, making it applicable to both balanced and unbalanced assignment problems.

***Keywords**: Alternative Method, Assignment problem, Hungarian method, TORA Software.*