Abstract

Integer Linear Programming Problem (ILPP) is a special case of Linear Programming Problem (LPP) in which a few or all the decision variables are required to be non-negative integers. For solving ILPP, normally Gomory cutting plane or Branch and Bound technique is used. In this paper, for implementation of the problem in neural network we have taken a new and simple hybrid (primal-dual) algorithm which finds the optimal solution for a class of integer linear programming problems. Normally for solving ILPP Gomory method or Branch and Bound technique is used. This new algorithm does not use the simplex method unlike Gomory cutting plane method and Branch and Bound techniques. The algorithm was considered for implementation with Artificial Neural Network (ANN) and the result shows a great improvement in prediction of results. Literature shows that ILPP occurs most frequently in transportation problems, assignment problems, traveling salesman problems, sequencing problems, routing decisions etc. Thus the implementation of the neural network on the new algorithm will provide comprehensive results when applied with any of the said problems.

Reference

Neural Network Implementation for Integer Linear Programming Problem


Index Terms

Computer Science

Neural Network

Key words

Artificial Neural Network (ANN)

Gomory

Cutting Plane

Integer Linear Programming Problem (ILPP)

Linear Programming Problem (LPP)

Branch and Bound technique

Primal-Dual