Abstract

In this paper we solve the non fractional knapsack problem also known as 0-1 knapsack using genetic algorithm. The usual approaches are greedy method and dynamic programming. Its an optimization problem where we try to maximize the values that can be put into a knapsack under the constraint of its weight. We solve the problem using genetic algorithm in matlab using gatool. In this research work different selection schemes have been used like roulette wheel, tournament selection, Stochastic selection etc. Following the introduction of genetic algorithm and knapsack problem, formulation of 0-1 knapsack problem in genetic algorithm is presented. Experimental results using various selection schemes have been analyzed and comparison of genetic algorithm technique is done with greedy method and dynamic programming optimizing techniques.

References

- S. S. Satya and P. Simon, "Review on Applicability of Genetic Algorithm to Web
Genetic Algorithm based Approach to Solve Non Fractional (0/1) Knapsack Optimization Problem

- Shokouhi, M.; Chubak, P.; Raeesy, Z; Enhancing focused crawling with genetic algorithms; Vol: 4-6, pp. 503-508, 2005.

Index Terms

Computer Science
Artificial Intelligence

Keywords
Knapsack, genetic, algorithm