Abstract

Vehicle Routing Problem (VRP) is a NP-Complete and a multi-objective problem. The problem involves optimizing a fleet of vehicles that are to serve a number of customers from a central depot. Each vehicle has limited capacity and each customer has a certain demand. Genetic Algorithm (GA) maintains a population of solutions by means of a crossover and mutation operators. We propose new methods for genetic operators. The proposed method for crossover is Sub Route Mapped Crossover Method (SMCM) and for mutation is Sub Route Exchange Mutation Method (SEMM). This paper applies Dominant Rank method to get Pareto Optimal Set. The vehicle routing problem is solved with two objectives i. e. number of vehicles
and total cost (distance). The proposed Dominant Rank Method finds optimum solutions effectively.

References


Index Terms

Computer Science
Algorithm
Keywords
Vehicle Routing Problem  Genetic Algorithm  Multi-objective Optimization  Dominant Rank Method

Sub Route Mapped Cross Over Method (smcm)

Sub Route Exchange Mutation Method (semm)