The minimum sum

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Abstract

In this paper, we propose an idea of TSP-algorithm for any graph.

1   Introduction and results

The traveling salesman problem (TSP) is equivalent to the phenomena of bee colony. The algorithm which is based on the phenomena can be constructed [Kar05]. In this paper, we use the arithmetical approach to the TSP. In general, the weighted graph has a minimum and maximum. Indeed, the sum of small numbers is a small number too. Just one large number can affect the summation. We assume the sum is finite. The sum is denoted by Σ.

Definition 1.1. A number is close to the minimum denoted by ℓ.

Definition 1.2. A number is close to the maximum denoted by μ.

Definition 1.3. N denotes the number of terms in Σ.

Thus, the object of the TSP is the minimization of the weights-summation in a graph. Thereby, we introduce the method for solving the TSP. The method has three steps:

1. The sum Σ must contain the small totality of the numbers μ.

2. The sum Σ should be dominated by the numbers ℓ.

3. N should be small.

This method can be applied to any graph.

References

[Kar05] D. Karaboga. An idea based on honey bee swarm for numerical optimization. Technical report-TR06, Erciyes University, Engineering Faculty, Computer Engineering Department, Turkey, 2005.