Abstract

Sorting algorithms are the class of algorithms that result in the ordered arrangement of a list of given elements. The arrangement can be in ascending or descending order based on the requirement given. Time complexity, space complexity and optimality are used to assess the algorithms. In this paper, a new sorting algorithm called Matrix sort is introduced. This algorithm aims to sort the elements of a matrix without disturbing the matrix structure. It has a time complexity of $O(n\sqrt{n\log\sqrt{n}})$ and hence takes lesser time than existing $O(n^2)$ algorithms. A pseudocode for the algorithm is provided and the best, average and worst case time complexities are derived.

References

2. Hoare, C.A.R.(1961). Algorithm 63, Partition; Algorithm 64, Quicksort; Communications of
the ACM, Vol.4, p.321
Addison-Wesley (2007)

Index Terms

Computer Science Algorithms

Keywords

Matrix sort, Top-down, Parallelizable sorting