Probabilistic Analysis of Perfect Partitioning in Randomized Quicksort

Abstract

The paper analyzes the probability of a scenario where Randomized-Quicksort performs a perfect partitioning of the input array. The RANDOMIZED PARTITION procedure, which is a subroutine of the Randomized-Quicksort, randomly picks an element of the given array as the pivot element, it then partitions the array around that element. A perfect partitioning occurs when every successive call to the RANDOMIZED-PARTITION procedure results in the picking of the median element as the pivot element, which partitions the array into two halves consisting of exact no. of elements. In this scenario, the algorithm yields an $\Theta (n \lg n)$ runtime.

References

2. Coremen, L., Rivest, Stein Introduction to Algorithm. PHI publication.

Index Terms
Keywords

Quicksort, Randomized-Quicksort