Assignment 1

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Download the python code from

https://github.com/Rishithapawar/C−DS/blob/main/
    Assignment1/codes

and latex code from

https://github.com/Rishithapawar/C−DS/blob/main/
    Assignment1

1 PROBLEM

(Q20.) An array of 25 distinct elements is to be sorted using quicksort. Assume that the pivot element is chosen uniformly at random. The probability that the pivot element gets placed in the worst possible location in the first round of partitioning is _____ .

2 SOLUTION

Answer : 0.08
The worst case occurs when the partition process always picks greatest or smallest element as pivot. If we consider the partition strategy where last element is always picked as pivot, the worst case would occur when the array is already sorted in increasing or decreasing order. So, there are only 2 worst case position in the pivot element is either first (or) last. Therefore the required probability is, 2/25 and hence the solution is 0.08