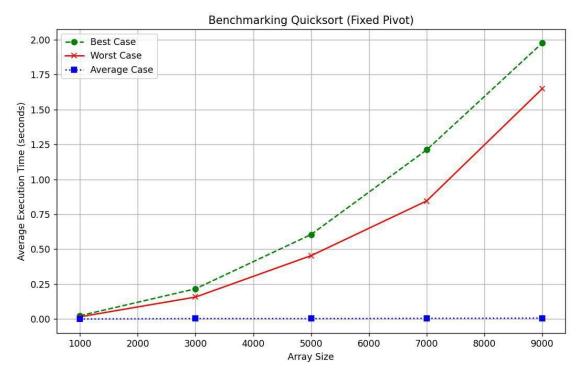
## HANDSON-6

## **DESIGN ANALYSIS AMD ALGORITHMS**

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2.



3.	Mathematically desire the average runtime complexity of the non-random privat version of quicksort
	Quick sort: Quick sort & efficient sorting algorithm that employed ivide and conquer strategy to sort elements in array or list.
	Recursive relation (3 T(n) = T(n-1) + T(n-1) + O(n). Where T(n) = Time complexity of quicksort for array of size n
	position of positive element after  positioning the array of the position of position of positive element after  T(n-1), T(n-r) Time to Sort left and right Subarray
	less and greater than elements than the pivot elements and rates with spot of the pivot of the p
	Now, Considering and average case.
	Ten) = $7(\frac{n}{2})$ to(n)  here at $(\frac{n}{2})$ represents any time for
	recursive calls.

3 Mathematically desive the average mustime complement
So, T(n) = O(n) + 2 T(m/2) = 000 set 10
T(n) = O(n) + 2(O(n/2) + 2T(n/4))
Ten = $O(n) + 2(O(\frac{n}{2})) + 4T(\frac{n}{4})$
$\frac{n\Theta + (n)T + (n)T + (n)T}{(n)T} = k \cdot Q \cdot \frac{m}{2} + 2 \cdot T \cdot T \cdot \frac{m}{2} $ and so so the suppose of the suppo
of Size n
Runtime complexity of quicksort for average case is O(nlogn)
T(n+1) T(n(mpolm2)Oc c(m)Tleff and right show to make the proof
2. fever data movement operations
Disadvantages is approve bus principles and
1- Mosst case performance can be pool.
10)= 7(2)+9(n)  here s+(2) represent and time for
recurre culls.