

1.

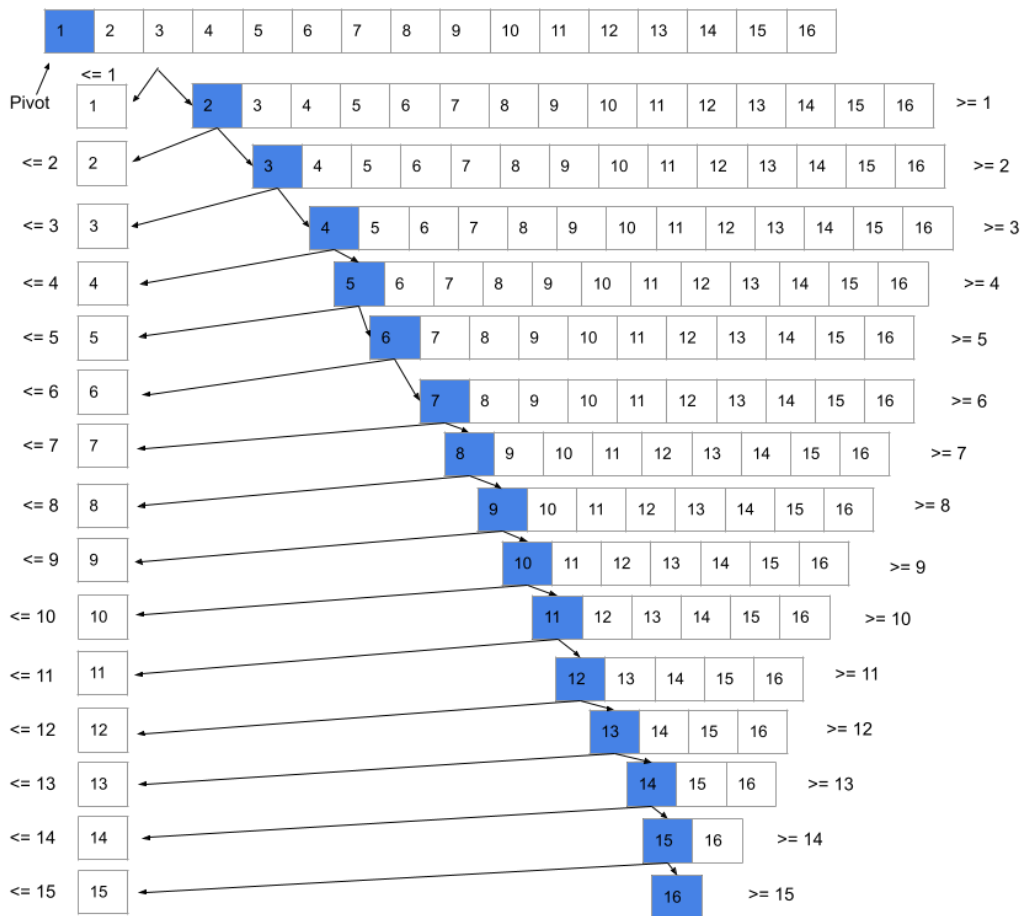
1. Complexity of QuickSort:

- Worst case is when pivot is biggest or smallest value
- Splits into 2 groups, 1 and $n-1 \rightarrow$ two time complexities
- Same amount of comparisons regardless $\rightarrow O(n)$

This means the time complexity will be: $T(n-1) + T(0) + O(n) = O(n^2)$

no work to sort as one value
n-1 value to sort
swaps in the sorting

2.



4. The chart did follow my complexity analysis, as it matched a quadratic increase over the amount of elements n . This means that the complexity in the worst case of quicksort is $O(n^2)$ as expected from the derivation.