

Time	Worst Case	Best Case	Average Case
Selection Sort	$O(n^2)$	$O(n^2)$	$O(n^2)$
Insertion Sort	$O(n^2)$	$O(n)$	$O(n^2)$
Merge Sort	$O(n \log n)$	$O(n \log n)$	$O(n \log n)$
Quick Sort	$O(n^2)$	$O(n \log n)$	$O(n \log n)$
Heap Sort	$O(n \log n)$	$O(n)$	$O(n \log n)$
Counting Sort	$O(n)$	$O(n)$	$O(n)$
Radix Sort	$O(n)$	$O(n)$	$O(n)$

QuickSort

```
QUICKSORT(A, p, r)
  if p < r
    q = PARTITION(A, p, r)
    QUICKSORT(A, p, q - 1)
    QUICKSORT(A, q + 1, r)
PARTITION(A, p, r)
  x = A[r]
  i = p - 1
  for (p <= j <= r - 1) do
    if (A[j] <= x) then
      i = i + 1
      SWAP (A[i], A[j])
    fi
  od
  SWAP (A[i + 1], A[r])
  return i + 1
```



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