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AD 325

Selection Sort

Time Complexity

Time complexity for selection sort is O(n^2) where N is the number of elements within the array. Complexity comes from the nested loops. The outer loop runs n times iterating through each element. The inner loop also runs n times in the worst case. Within the inner loop there are operations like comparisons and swaps.

Space Complexity

The space complexity is o(1), which means it uses a constant amount of memory. The algorithm sorts the array in place which doesn’t require additional memory. The extra variables do not depend on the size of the input.

Stability

Selection sort is generally not stable because it swaps elements without considering their original order. For instance if there are two elements with the same value in the array it may swap their location. If you were to modify the swapping logic you could make this method stable.