SELECTION SORT

How does Selection Sort Work?

The algorithm starts traversing from the first element of the array. For each element, a loop iterates once through the elements following it. During this process, comparisons are made. In the second loop, if a smaller element than the one in the first loop is found, they swap positions. This process continues, gradually arranging the list in ascending order from the smallest to the largest element.

Time Complexity

Since it is traversing two nested loops, the time complexity of the algorithm is O(N^2).

Space Complexity

Selection sort has a space complexity of O(1) because it sorts the array in-place and does not require additional memory proportional to the input size.

Discussion

The "selection sort" algorithm may appear efficient in terms of "space complexity," but it is highly inefficient in terms of "time complexity." It is suitable for use with small datasets.

Here is the visualization result of the selection sort implementation by swapping current element with the smallest element: