DULAT AMANGELDY CODE REPORT SELECTION SORT

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Selection Sort is a simple in-place algorithm that repeatedly finds the minimum element from the unsorted part of the array and moves it to the front.

Its time complexity is O(n²) in the average and worst cases and can improve to O(n) only if an early termination optimization is added; its space complexity is O(1).

The reviewed implementation correctly tracks comparisons and swaps and includes comprehensive unit tests for empty arrays, single elements, sorted, reverse-sorted, duplicate and random inputs.

Measured results confirm the theoretical analysis: comparisons grow with n² and swaps roughly with n, for example at n=10000 about 49,995,000 comparisons and 9989 swaps were recorded.

The algorithm is suitable for small datasets but inefficient for large ones. Adding early termination and a command line interface would improve its best-case performance and usability.