

1. Selection Sort

In a selection sort on n elements, on the i^{th} iteration (beginning with 0), we pass through the array from A_i to A_{n-1} to find the smallest value. Thus, the number of operations is given by

$$(n-1) + (n-2) + \dots + 2 + 1 = \frac{n(n-1)}{2}$$

A selection sort is therefore $O(n^2)$.

2.