Sorting

In the exercises below, assume that A is an array of size n, and i is an integer $0 \leq i < n$.

Bubble sort

(a) After i iterations of the outer loop of Bubble sort, the i *first* elements are sorted.

(b) After i iterations of the outer loop of Bubble sort, the i *last* elements are sorted.

(c) Bubble sort only swaps adjacent elements.

(d) Bubble sort guarantees a minimal number of swaps.

Selection sort

(e) After i iterations of the outer loop of Selection sort, the i *first* elements are sorted.

(f) After i iterations of the outer loop of Selection sort, the i *last* elements are sorted.

(g) Selection sort only swaps adjacent elements.

(h) Selection sort guarantees a minimal number of swaps.

Insertion sort

(i) After i iterations of the outer loop of Insertion sort, the i *first* elements are sorted.

(j) After i iterations of the outer loop of Insertion sort, the i *last* elements are sorted.

(k) Insertion sort only swaps adjacent elements.

(l) Insertion sort guarantees a minimal number of swaps.