

1(a). Take $i = 0, j = 1$. The first iteration of the outer loop compares $n - j = 5 - 1 = 4$ times. No element $A[j]$ satisfies $A[j] < A[small]$, so there are no swaps. The next iteration of the outer loop, with $i = 1$, sets $j = 2$ and we perform $5 - 2 = 3$ comparisons. Again there is no swap. With the next iterations, we compute another 2, then 1. Together there are $4 + 3 + 2 + 1 = 10$ comparisons with 0 swaps.

1(b). Since there are the same number of elements, then there are again 10 comparisons. The function performs 2 swaps.

1(c). There are 10 comparisons with 2 swaps.

2(a). For $n = 0$ or $n = 1$, there are 0 comparisons.

For $n > 1$, one iteration of the outer loop performs $n - j$ comparisons. The next iteration increments j then performs $n - j$ comparisons. When $n - j = 1$, the last comparison is performed. So $n - 1$ is the upper bound. The comparisons occur unconditionally. Hence the minimum and maximum are equal and are determined by

$$\sum_{j=1}^{n-1} n - j.$$

2(b). For $n = 0$ or $n = 1$, there are 0 swaps.

For $n > 1$, the maximum number of swaps is $n - 1$, and the minimum number of swaps is 0.