

→ Selection Sort Correctness Proof

Loop Invariant

Init:

after every iteration, the subarray before current index is sorted and remain ascending.

Msit: After $i-1$ iterations, 0 to $i-2 \rightarrow$ sorted

$min = j$

swap ($arr[i]$, $arr[min]$)

min element found and swapped.

Thus, after n iterations, array gets

sorted when running from 0 to $n-1$.

0 to $i-1 \rightarrow$ sorted.

Termination:

After completion of the loop, the algorithm

terminates and array gets sorted.