**Loop Invariant:** The subarray of A[j…n] consists only of elements contained in the original subarray A[j…n] but these elements don’t necessarily have to be in the same order. The first element of the subarray A[j…n] is always the smallest element of the subarray.

**Initialization:** A only consists of two values, A[A.length] and A[A.length -1]. The if statement ensures that the smaller value is the first element.

**Maintenance:** In every step, we are comparing the new value A[j] with the current smallest value of the new subarray and swapping their positions if the new value is larger than the smallest value. This will ensure that the smallest value is at the front of the subarray throughout the loop. The subarray is consistently increasing in length by 1 for each loop.

**Termination:** The loop terminates when j = i+ 1. Once this is the case, the length of the subarray will be equal to A.length and i + 1 and i will swap if necessary, ensuring the smallest value is at the beginning of the subarray.