

3.

Algorithm mergeSortPlus(S)

Input: Sequence S with n integers

output: Sequence S sorted

if $S.size() \leq 20$ then
 insertionSort(S)

else

 (S1, S2) partition(S, n/2)

 mergeSortPlus(S1)

 mergeSortPlus(S2)

 S merge(S1, S2)

return S

3.C While running the tests for Merge Sort and Merge Sort plus, it is seen that the mergesortplus runs faster. Although mergesort has $O(n \log n)$ and insertion sort has $O(n^2)$, for the small input array the insertion sort works better and due to this, the hybrid combination is better for practical cases.