

Group Members

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ASSIGNMENT II

The recurrence relation for this algorithm involves a single pass through both lists. The merging process takes linear time relative to the total number of elements in the two lists.

We used two lists each having four elements (list1 = 1, 3, 5, 7 and list2 = 2, 4, 6, 8)

If the size of both lists is $(\text{size1} + \text{size2}) = n$ then,

$T(n) = T(n-1) + O(1)$ thus $T(0) = O(1)$ and therefore the time complexity is $O(n)$

Regarding the space complexity, the algorithm uses additional space to store the merged list therefore the space complexity is still $O(n)$ where $n = \text{size1} + \text{size2}$.