Ans to the question no. 2 For the implementation 1, the function is Using Recursion. Draft on let, Dreft ford botten 10000 07(00) = 27(n-1)+C and shot complaint ez = (AT) (n-2) + 3c 1 (2000) - moltinoglo = 2081 (203) + 7C $= 2^{K} T (n-k) + (2^{K}-1) C$...(i) Hene, Implementational - manging in another time complexity (ii) how. And notation I => k=n ... (ii) Putting Eq. (ii) K value in Eq. (i)

 $= 2n(1+e) - e \approx 2n$

So, For implementation 1 using reargion, the time complexity is $\frac{\Theta(n)}{O(2^n)}$. So, This function is an exponential function and have an a bad time complexity.

The implementation 2 is using simple loop / for loop and memorization method.

Not any recursive method. Therefore Also implementation 2 does not have any nested loop. Therefore, the time complexity for this function implementation would be O(n). So, implementation 2 is an linear time algorithm function.

Here, Implementation 2 has better time complexity than implementation 1. Therefore, For larger inputs implemention I would require more time than implementation I to solve the problem.

So top implementation a. Using treuming

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