# Task 2 (a) !-(°s)0 = > Implementation 1:-Here the necunnencely netation, is F(n) = F(n-1) + F(n-2) + CFor visualization, Let, n= 4 gallahamalant Bornuse of using memoization technique Jonesen Illing H.F.(2) grtoF(1) amil F(1) + F(0) decertically, we are using a single loop And, forc n= 2, workshop in the end of the . (n)0 9d F(12) with slyman smit. F(1) + F(0)For any case the time complexity is, 2. Because Exponenti (U-Highe) Oalgorillins Ing much slover than linear (17/2) to algorithms  $= O\left(\frac{2^n}{2}\right)$ 

## $= O(z^n)$

And, the space complexity will be O(1).

# Took 2 (a) 1.

> Traple mentation 2 :-

Because of using memoization technique,

some extra memory space would be

consumed of 0 (n) (E) =

However, the time (1) complexity will reduce drastically we are using a single loop in this implementation. That's why, the time complexity will be O(n).

Between implementation I and 2, the faster code execution will be of implementation 2. Because, exponential time algorithms are much slower than linear (time algorithms.

(0) = + (1) =

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