Time & space complexity of Recursive Volution :-7(n) -) Time Taken as a function of input in! Recursive function mounteur stack. funch-ye Base case reach hoga toh Jaare fun () ko unbind karstack funca-D2 fun(n) }
mount) unbind karega Void print Array (int all, intr) & Fine taken by any algorithm to with if (n==0) return;

cout < pake;

print Array (a+1, n-1);

fine taken by any
algorithm to with

algorithm to with

telepect to its function

the formula Bused Method

f(n) = k + F(n-1)

f(n) = O(nk+k,)

= O(n) if (n==0) return; & Recursive Tree Methodó-F(n-1) = & + f(n-2) pa(n) ->k F(n-2) = k+ F(n-3) PA(n-1) -> le 7(n)=nk+k n-2-> K [7n=0(n)] F(0) = k + F(0) E(0) = k F(n) = mk + k, T(n) = mk + k,2-2 -> K WI -> K,

khud se kuch hum memory allocation who has she had se manage bar the had se manage bar Place Complexity :vrha hai PA(0) -PAUS 18c3 O(n+1) = O(n) nort PA(nor) -m n=3 | P(0) | 3 PA(n-1) =>m M(m) tom O(3+1)=0(4) P(3)=4 main() Opper bound me maines constant to synore kan dete have T(n)= k+T(n-1) Factorial RE:-T(n-1) = K + T(n-2) 7(n-2) = K+7(n-3) wint fact (int m)? if (n==1) return 1; T(1) = K return n & fact (n-1); T(n)=nK F(n-1) / T(n) = nkown par entry mespace kharling fact(n-1) Space Complexity fact (n) SC E O(Nm) maine) constant SC = O(N)

& Binary Search RE unt Bs (int all, int k, int start, int end) { I fercilize BS if (start 7 end) is mobetler return -1' Qualitythan ind mid= start f (end-start)/2; Pecurite because it 1 (a [mid] == k) { takes less nemon return mid; else if (k) a [mid]) [return Bro (a, k, mid+1, end); victum Bs (a, k, start, mid-1); Fin) = k+ Fin/2) kuch k processing lati hai [
grand fire dubana
se eall kar I m/4 se eall far I N/B (1) Size ka he lige. 9(m/a)= k = T(n/k) T(DK) = K+T(72/4) 7 (n/4) = k + 7 (n/8) sacdogn gi mly T(x) = k + T(1) [7(n) = dogn (1=1) -1 R Space-Complexity BS(1/4) +>K a = logn 7/29 BS(n/L) -3k 11 Oltn)= delogn; m BS(n) ->k Space 3.(=) O(logn) main()

Recursive Algor ka drawback hote how vo stack pe Space le ke aa fate hai Two method Totirdopre DEK Visual True comprenigopre Mathematical Translastic Translast ant fib (int n) of

if (n==011 n==1)

seturn n; 2 kc - fib(n) 10 7(m) (23 octum fib(n-1) +fib(n-y) 2 + c - fib(n-1) fib(n-2) fib(n-2) fib(n-3) fib(n-3) fib(n-3) fib(n-3) Ton) < 2°C7 2xC+2xf 23xf.Cf-Tr) < [2°+2'+2²+...+2"] crazy highe T.C. 7(n) < 2ⁿ-1 T(n)= (22) of pace complenely > kitna depth me (tibl 5) six(3). 18C=> O(n) fiblys fiber fiber fih (5) (n==1 or n==0) setur h.. 0000