

$f(4)$

$f_h(4, 1)$

$f_h(3, 1)$

$f_h(2, 1, 2)$

$f_h(1, 2, 4)$

$f_h(0, 2, 4)$

returned
bc now at base case

factorial

0 1 2 3 4 5 6 7

index \rightarrow 0 1 1 2 3 5 8 13

$f(7)$

$f(7, 1, 0)$

$f(6, 1, 1)$

$f(5, 2, 1)$

$f(4, 3, 2)$

$f(3, 5, 3)$

$f(2, 8, 5)$

$f(1, 13, 8)$

$f(0, 21, 13)$

stop
base case

tail recursive fib: a lot less calls!

$a = 0$

$b = 1$

$c = 1$

$i = 2 \rightarrow 7$

goal: 0 1 2 3 4 5 6 7

0 1 1 2 3 5 8 13 0

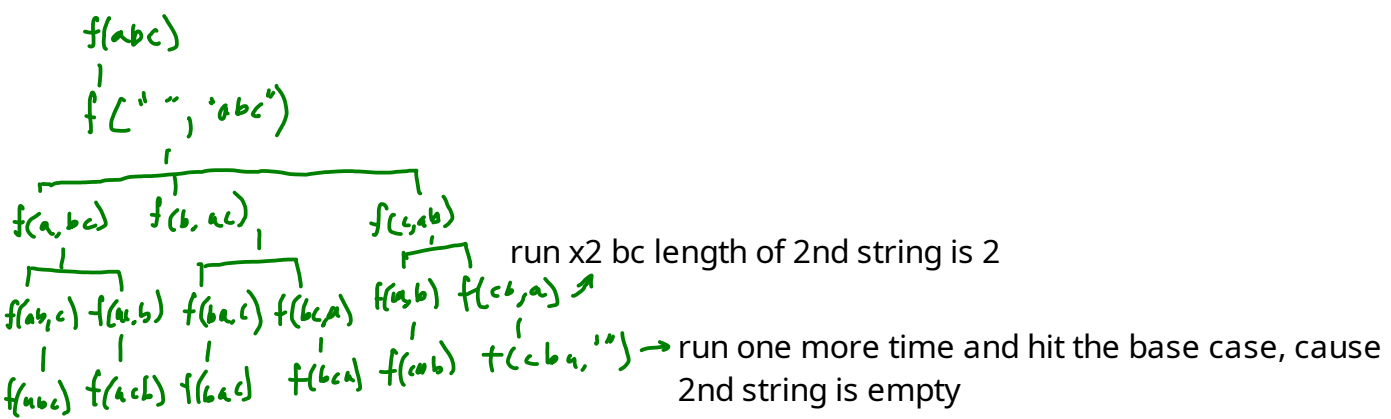
① $\bar{a} \bar{b} \bar{c}$ 1 1 1
② $a b c$ 1 1 1

$n-2$

generate fibonacci using iteration

$$a_{n+2} = a_{n+1} + a_n$$

$$\begin{cases} a_0 = 0 \\ a_1 = 1 \end{cases}$$



find all permutations of a string

n	$\div 2 = 0$ $\div 5 = 0$ $\div 3 \text{ or } \div 4 = 0$	$\frac{508}{2} \rightarrow 250$ if even num, can kill 1/2 of bears $250 - 42 \rightarrow 208$ if divisible by 5, can kill 42 bears $208 \rightarrow 0.8 = 0$ if divisible by 3 or 4, take last 2 digits, multiply, and and kill that many bears
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goal: try to get to 42 bears (some nums have sol, some no sol)

42 bears problem