

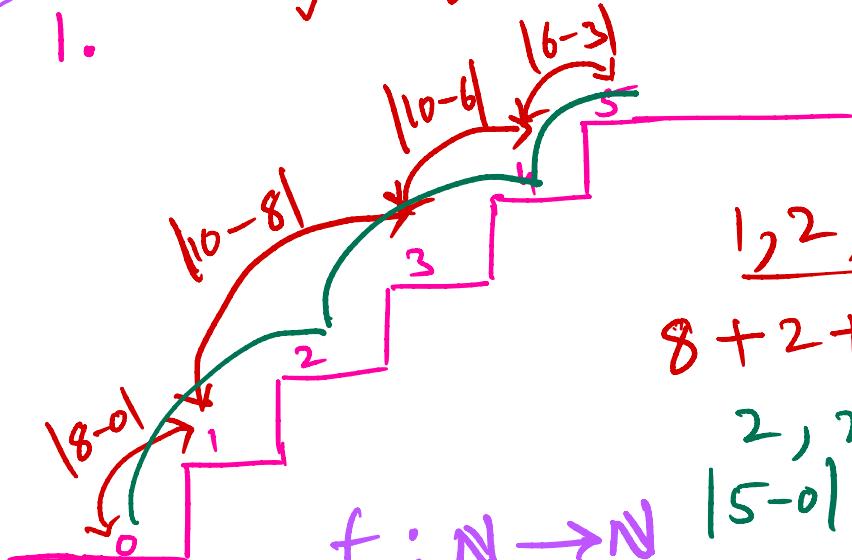


08/08/22

0	1	2	3	4	5
0	8	5	10	6	3

Home Work

1.



$$1, 2, 1, 1$$

$$8 + 2 + 4 + 3 = \underline{\underline{17}}$$

$$2, 2, 1$$

$$|5-0| + |6-5| + |6-2|$$

$$f : N \rightarrow N$$

$f \mapsto$ Total no. of ways

$$1\text{ way} : 2, 1, 2$$

$$5 + 1 + 3 = \underline{\underline{9}}$$

$$2\text{ way} : 1, 1, 2, 1$$

Least

$$3\text{ way} : 2, 2, 1$$

$$4\text{ way} : 1, 1, 1, 1, 1$$

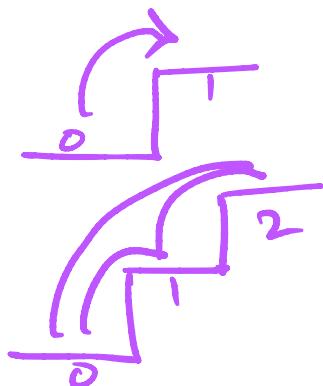
⋮

$f(n) =$ "Total NO. of ways to climb "n" stairs subject to climbing 1 or 2 stairs

at a time"

$$n=1, f(1) = 1$$

$$n=2, f(2) = 2$$



$$f(n) = ?$$

2.

5	1		11	10
6	9	0	3	
1	2		8	6
10	-	14	0	15

R ✓
D ✓

25x30

4x5

RRDRRRDD
DRDRRRDR
RRRRDDDD ✓

{ D,D,D,D,
R,R,R }

mark = ?

$$\frac{7!}{3! \times 4!}$$

X

3.

"set"

$$\underline{\{1, 2, 5, 9, 7\}} \quad \checkmark$$

$$\checkmark S = \underline{\{1, 2, 5\}} \quad \underline{\text{Sum} = 8}$$

$$\checkmark S = \{7, 1\}$$

- Can we get a subset?

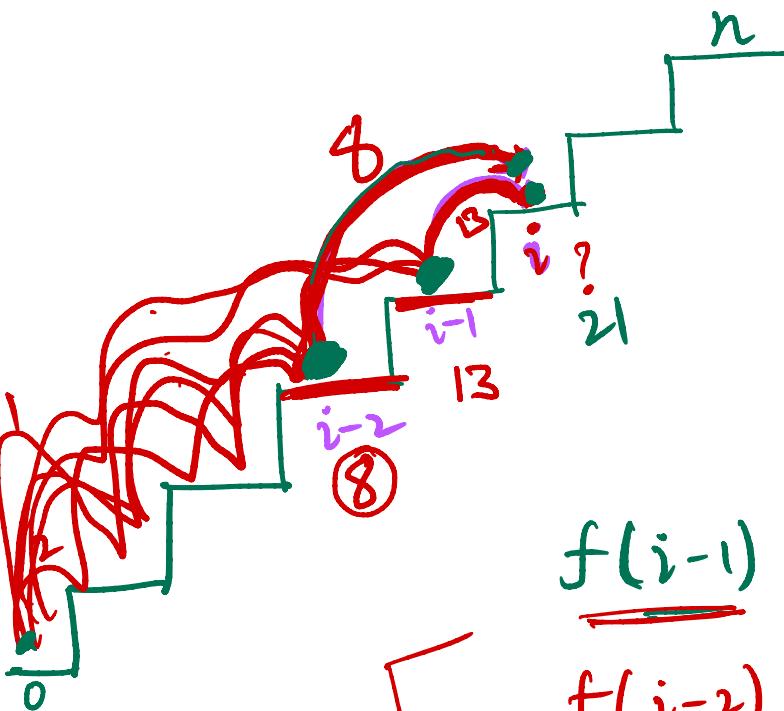
Yes | No

- How many such subsets?
- How many elements in

largest subset?

- How many subsets in second largest subsets?

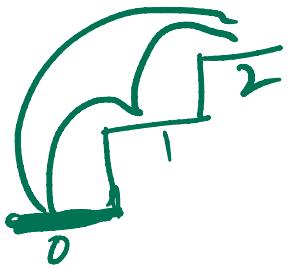
$$f(n) = ?$$



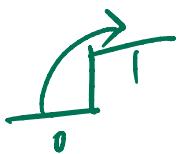
$$\underline{f(i-1) = 13}$$

$$\underline{\underline{f(i-2) = 8}}$$

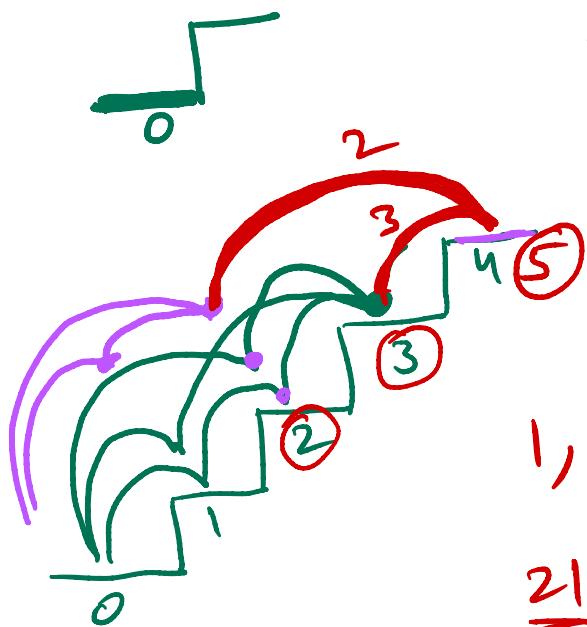
$$f(i) = f(i-1) + f(i-2)$$



$$\begin{aligned}
 f(2) &= f(1) + f(0) \\
 &= 1 + 1 \\
 &= 2
 \end{aligned}$$



$$\begin{aligned}
 f(1) &= f(0) + f(1) \\
 &= 1 + 1 \\
 &= 2
 \end{aligned}$$



$$\begin{aligned}
 f(4) &= f(3) + f(2) \\
 &= 3 + 2 \\
 &= 5
 \end{aligned}$$

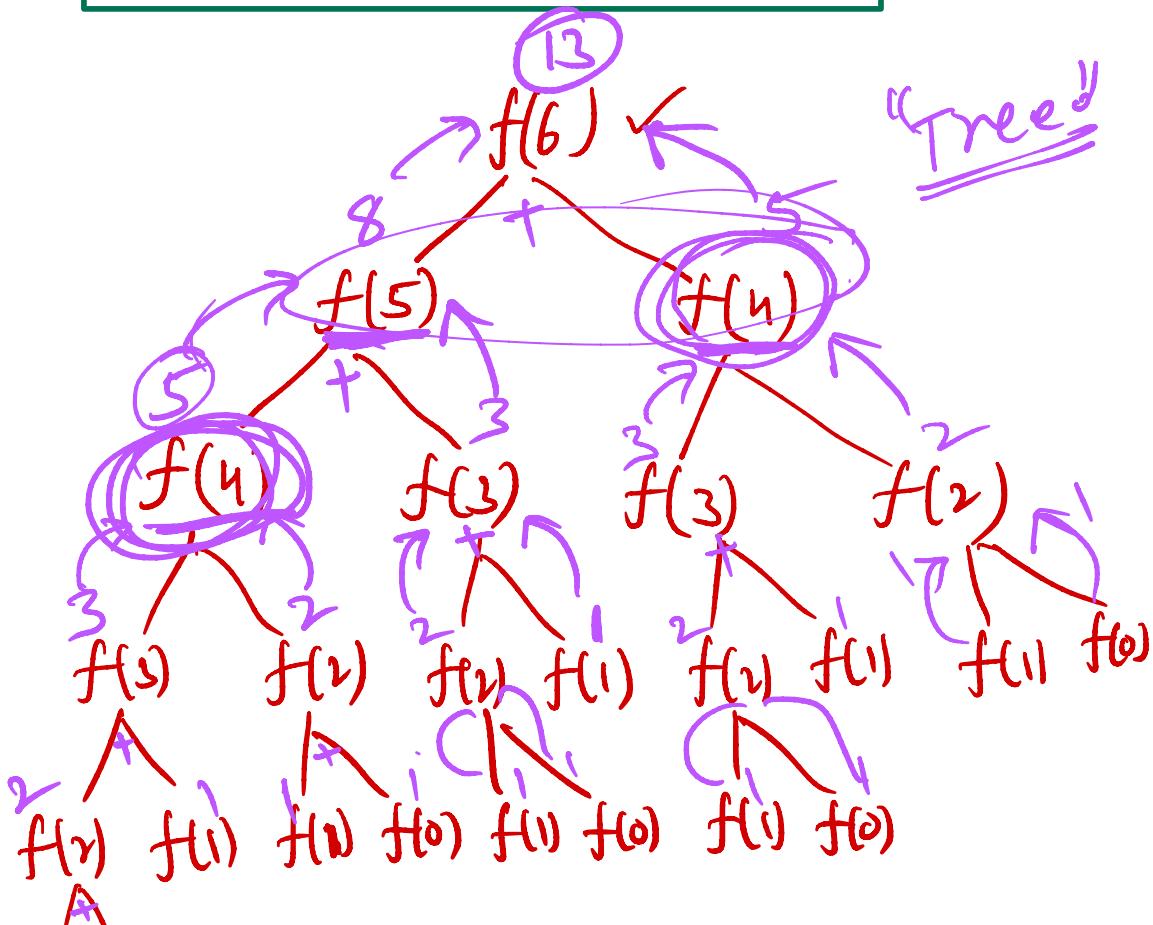
$$\begin{aligned}
 1, 1, 2, \underline{3}, \underline{5}, 8, \underline{13}, \\
 \underline{21}, \underline{34}, \dots
 \end{aligned}$$

$$\boxed{f(n) = f(n-1) + f(n-2)}$$

Prendo \approx C++

```
int f(int n){  
    if(n == 0 || n == 1)  
        return 1;  
    return f(n-1) + f(n-2);
```

$$f(0) = 1$$
$$f(1) = 1$$



$f()$ $f()$

"stack"
"call stack"

$f(n, A) \{$

$A = [-1, -1, -1, -1]$

if ($n == 0 \text{ || } n == 1$)

 return 1;

if ($A[n] \neq -1$)

 return $A[n]$;

 return $A[n] = f(n-1) + f(n-2)$;

}

