06 September 2022 19:03

0, 1, 1, 2, 3, 5, 8, 13 ... N-1, N

i=3 : 1 2

0th number → 0

1st number → 1

2nd number → 1

3rd number → 2

0 → 1

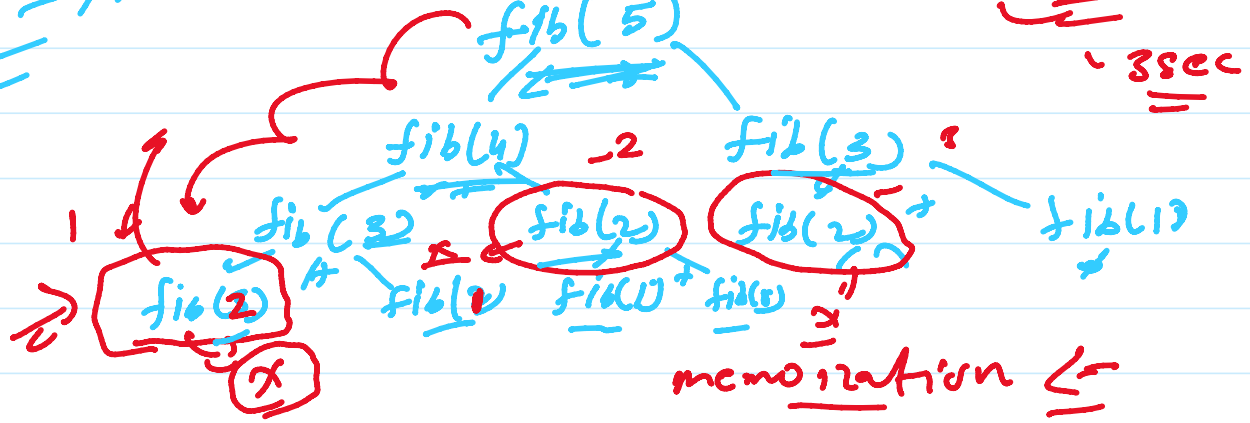
1 → 1

nth Number =

(N-1)th number

+

(N-2)th number



1sec

3sec

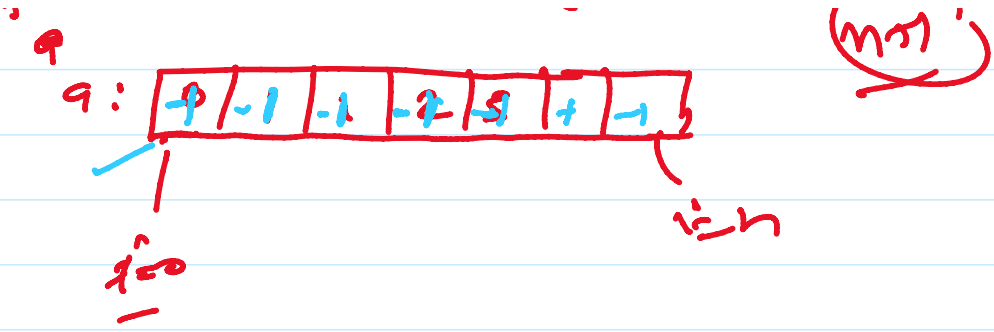
memoization

```
function fib(n):
    if n=0
        return 0;
    else if n=1
        return 1;
    else
        return fib(n-1) + fib(n-2)
```

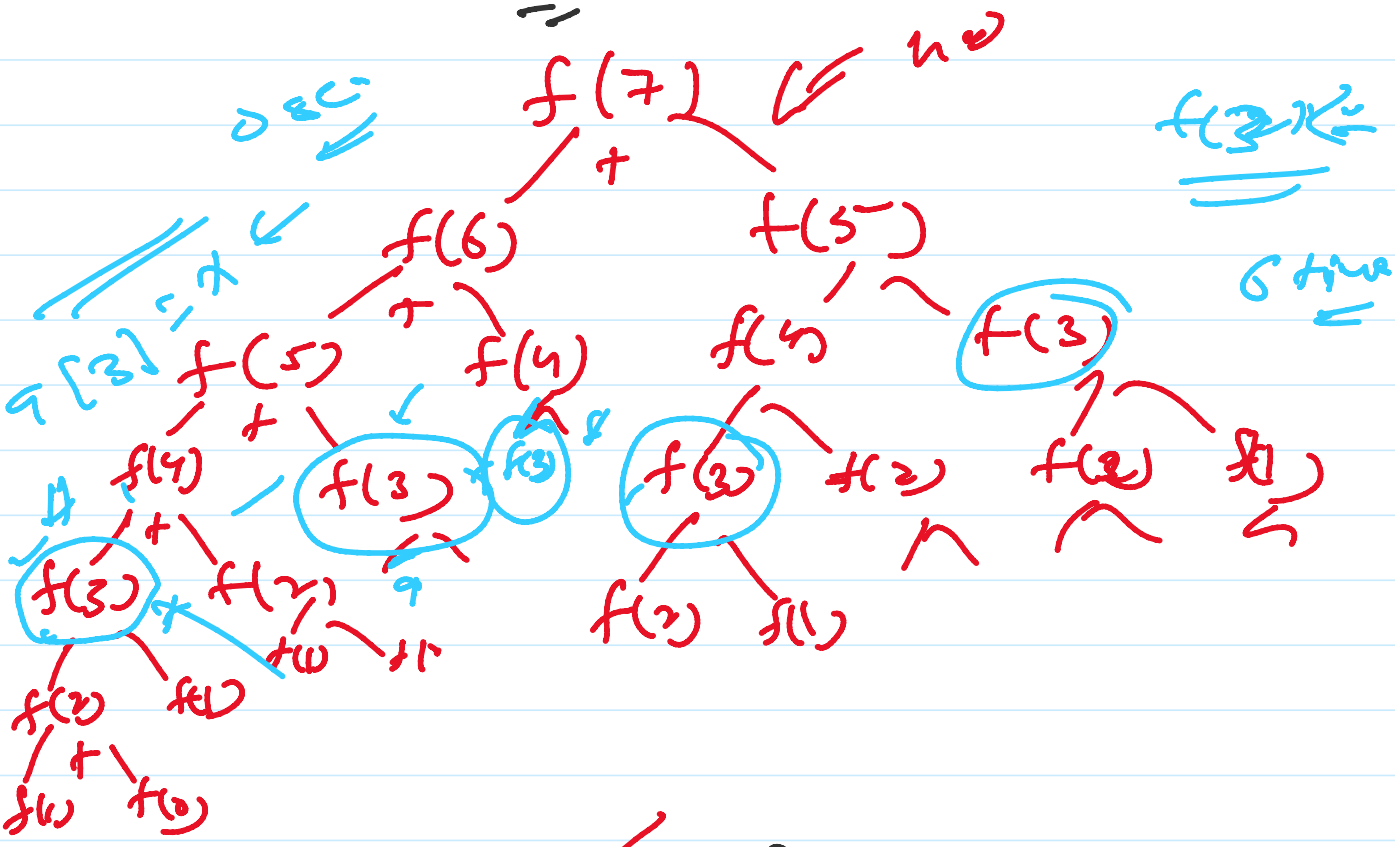
nth fibonacci number

a: [| | | | | |]

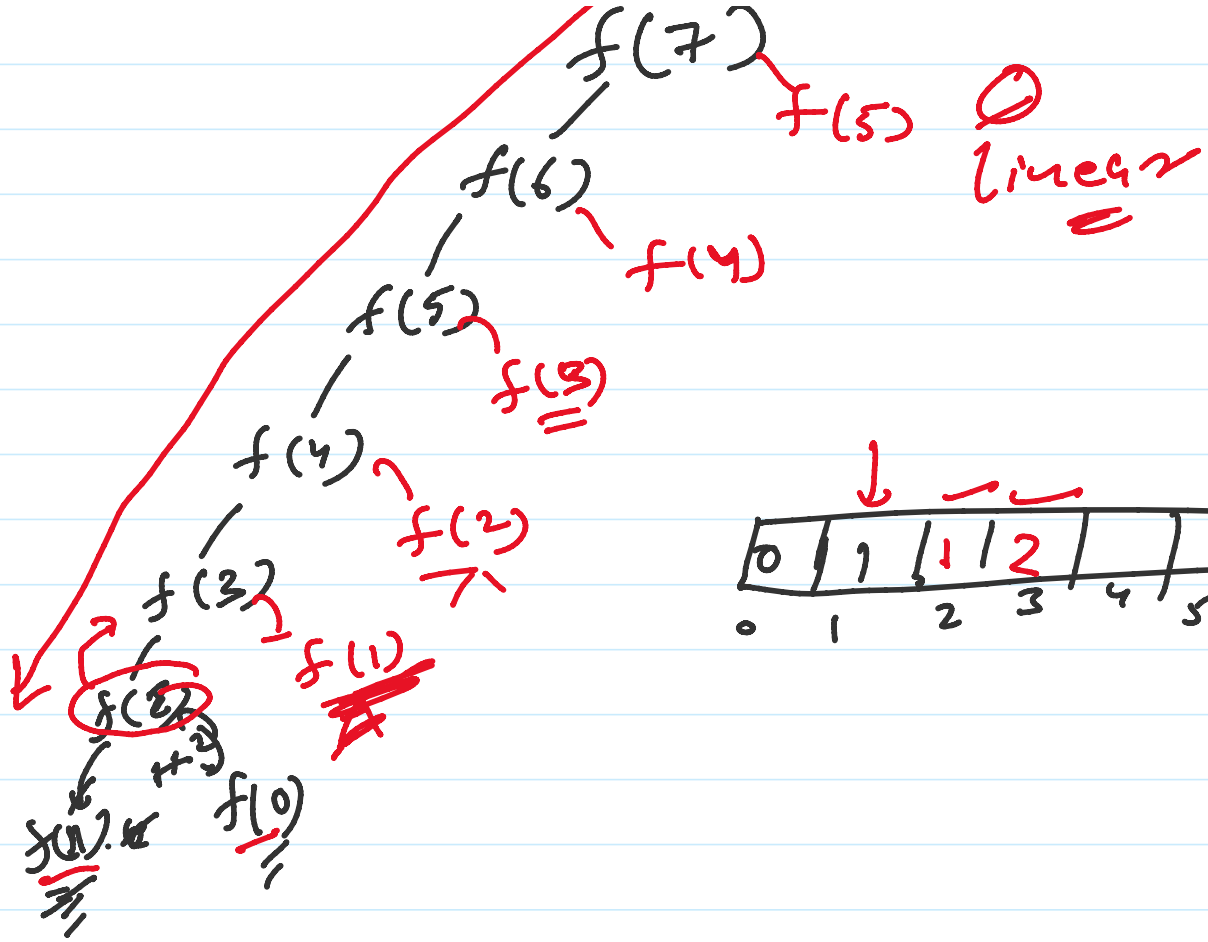
n+1




```
function fib(n):
    if(q[n] != -1): return q[n]
    if n==0:
        q[0]=0
    else if n==1:
        q[1] = 1:
    else: q[n] = fib(n-1) + fib(n-2)
    return q[n];
```



f(7)



input data: 7 | 1 | 3 | 2 | 5 | 7 | 8 |

[35, 3, 4, 88, 9, 10, 21 5, 5]

[35]

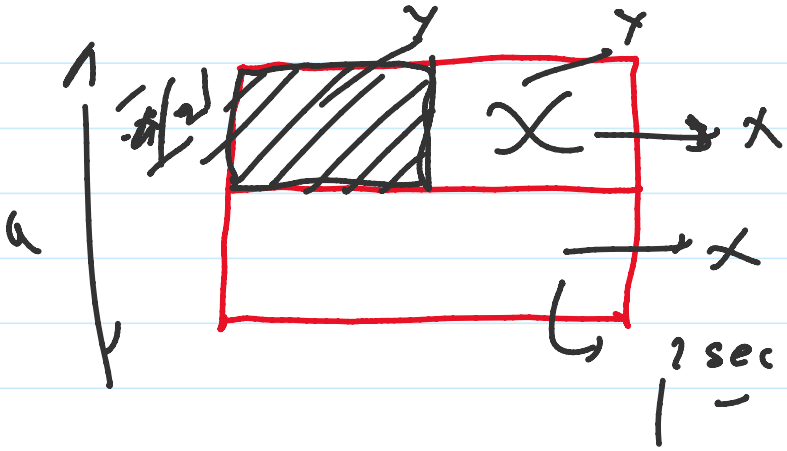
[3 3, 4, 5 c]

[3, 4, 5, c, 9, 10, 21, 35, 88, 8c

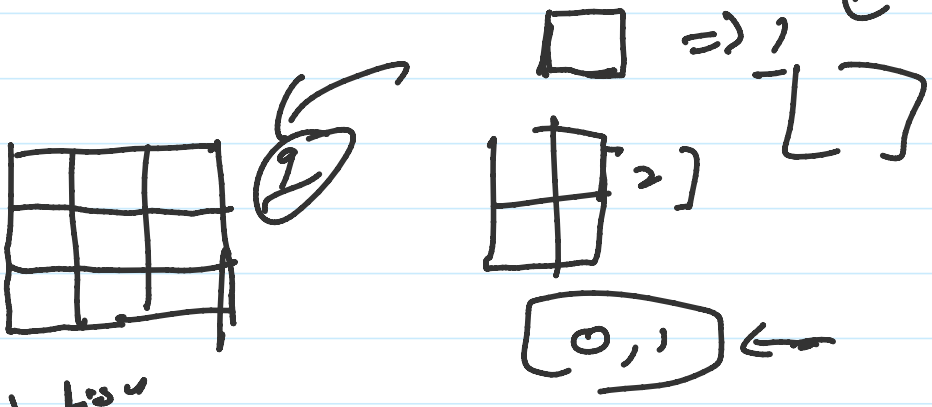
q[i] = q[i-1] + 1 || q[i] = q[i-1]

// for i = 1 ..... n-1 :

```
for i = 1 ------ n-1 :
    j = i
    while ( j < n && (q[j] = q[j-1] || q[j] = q[j+1])
        j++;
    // sequence break
    // j - j+1 → seq
```

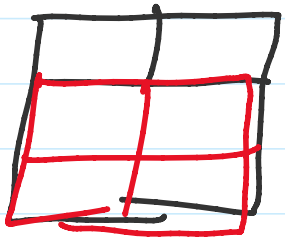


Area(big sqm) = 4 × Area(small sq)



relation

fib(n) => fib(n-1) + fib(n-2)



very

calculate $(a)^5$

$\Rightarrow a \times a \times a \times a \times a$ (b times)

$a^4 = a^2 \cdot a^2$

$(a)^b = a^{b/2} \cdot a^{b/2}$ if b is even

$(a)^{bB} = a^{b/2} \cdot a^{b/2} \cdot a^1$ → if odd

$2^5 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2^1 = 2^5$

$a^{b/2} \Rightarrow x$

$(a^b) = x^2$, $x^2 \cdot a$

$(a^{b/2}) = (a^{b/4}) \cdot a^{b/4}$

log n

~~b>=0~~

```
Function pow(a, b):
    if b==0:
        return 1:

    if a==0:
        return 0:
    x = pow(a, b/2)
    if(b%2==0)
        return x*x
    return x*x*a
```