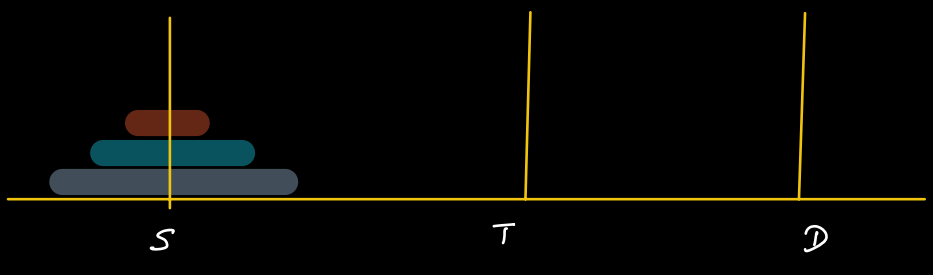
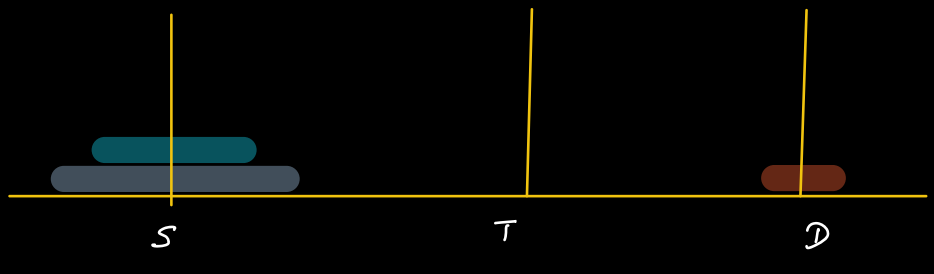
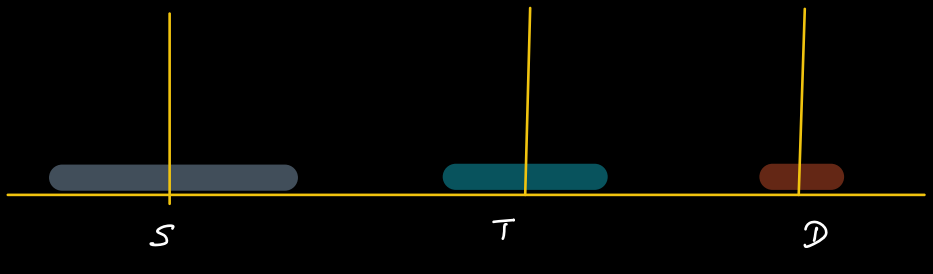


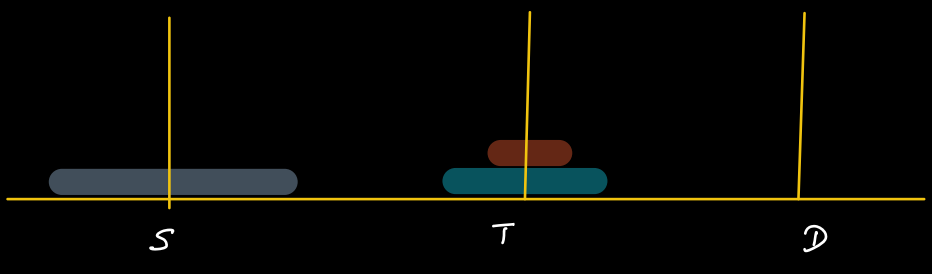
S → D



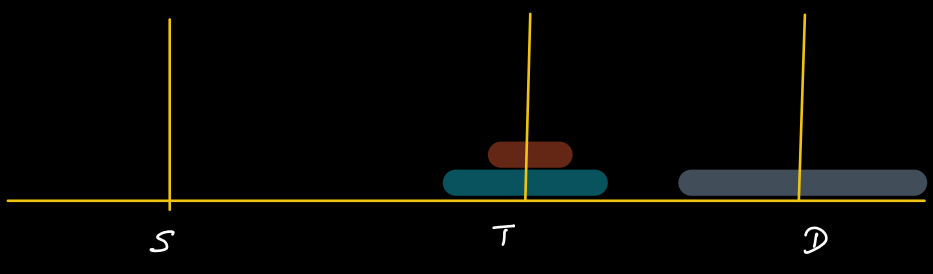
S → T



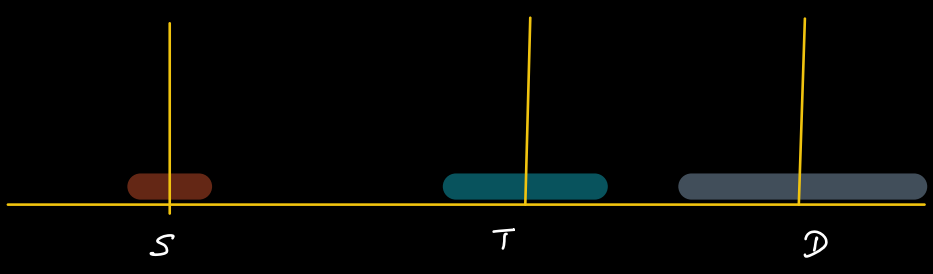
D → T

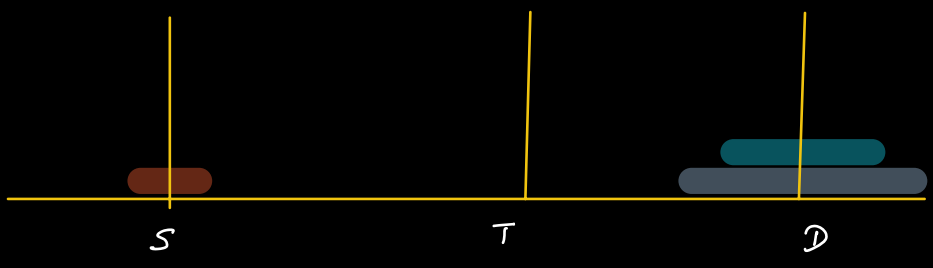


S → D

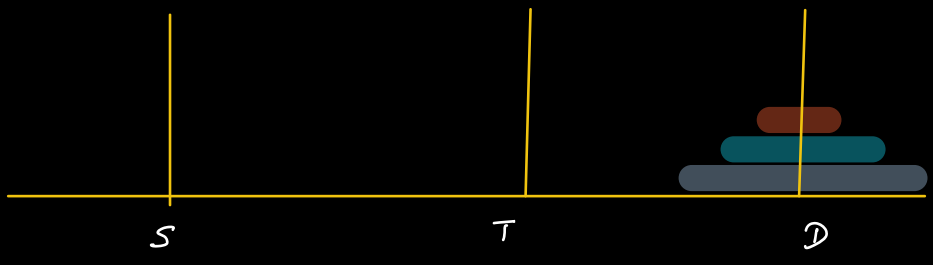


T → S





T → D



S → D

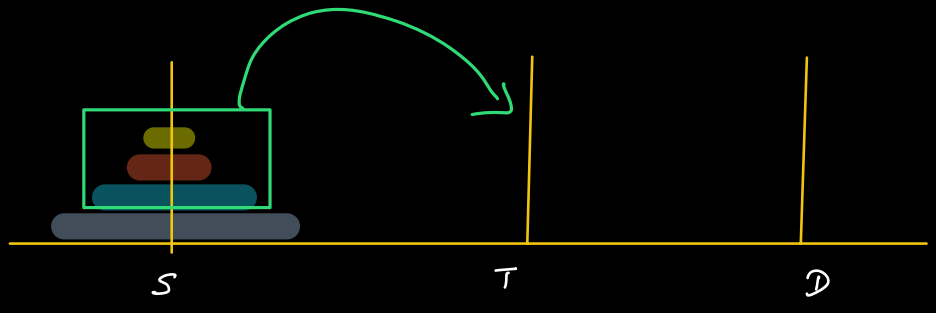
```
void TOH ( N, A, C, B )
```

N → Count of disk
A → Source
C → Dest
B → Temp

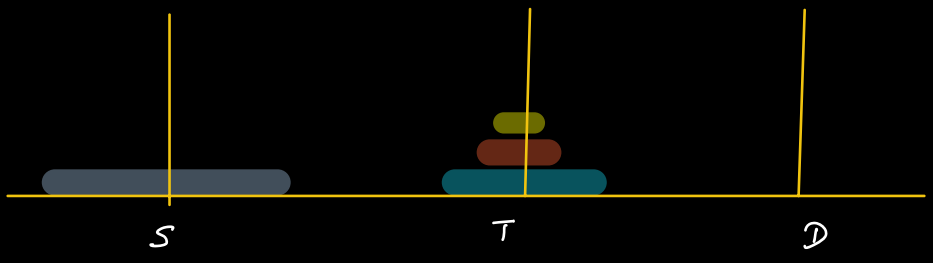
$$f(N) = f(N-1) + f(N-2)$$

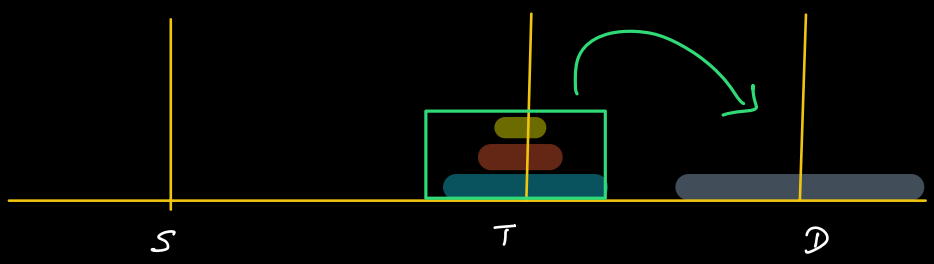
$f(x)$ → x^{th} fibb no.

```
int fib (N) {
    if ( N <= 1 ) ret 1;
    ret fib(N-1) + fib(N-2);
}
```



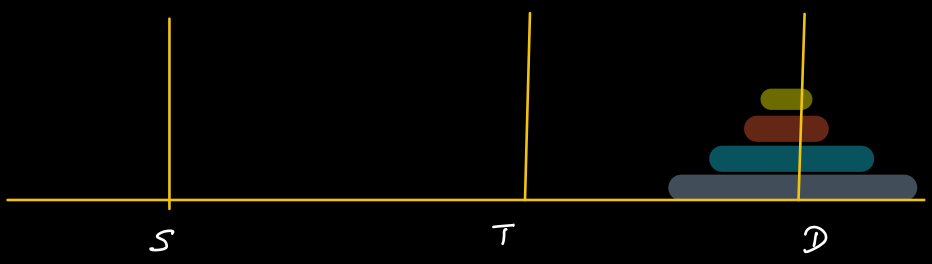
move (N-1) plates from S → T





S → D

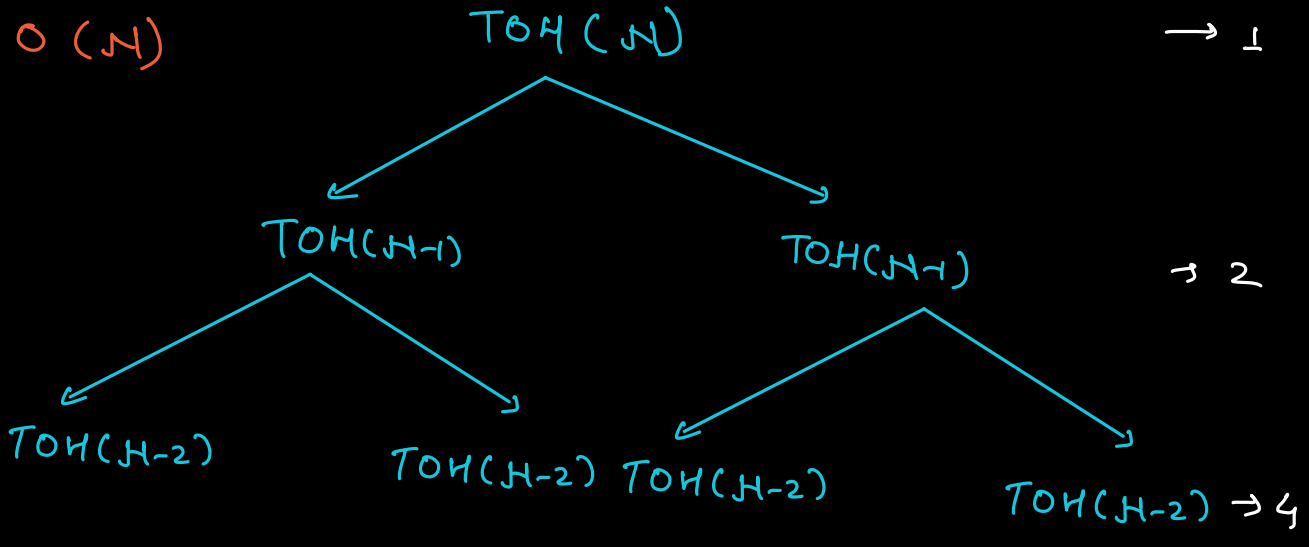
move (N-1) plates from T → D



```
void TOH (N, A, C, B) {
                S  D  T
    if (N==0) return;
    TOH (N-1, A, B, C);
                S  D  T
    SOP (A + "to" + C); ──→ (2^N - 1)
    TOH (N-1, B, C, A);
                S  D  T
}
```

TC: $O(2^N)$

SC: $O(N)$



Ret Count of steps

→ $2^N - 1$ → $O(1)$

a x b ←

a ÷ b

Q Gray Code

000
001 (1)
011 (1)
010 (1)
110 (1)
111 (1)
101 (1)
100 (1)

100/010

000
001 (1)
010 (2)
011 (1)
100 (3)
101 (1)
110 (2)
111 (1)

Given N (no of digits)
Generate gray code sq of N digits.

N: 2 < "00",
"01",
"11",
"10" >

N: 3 <"000",
"001",
"011",
"010",
"110",
"111",
"101",
"100" >

N: 1 0
1

00
01
11
10

0000
0001
0011
0010
0110
0111
0101
0100
1100
1101
1111