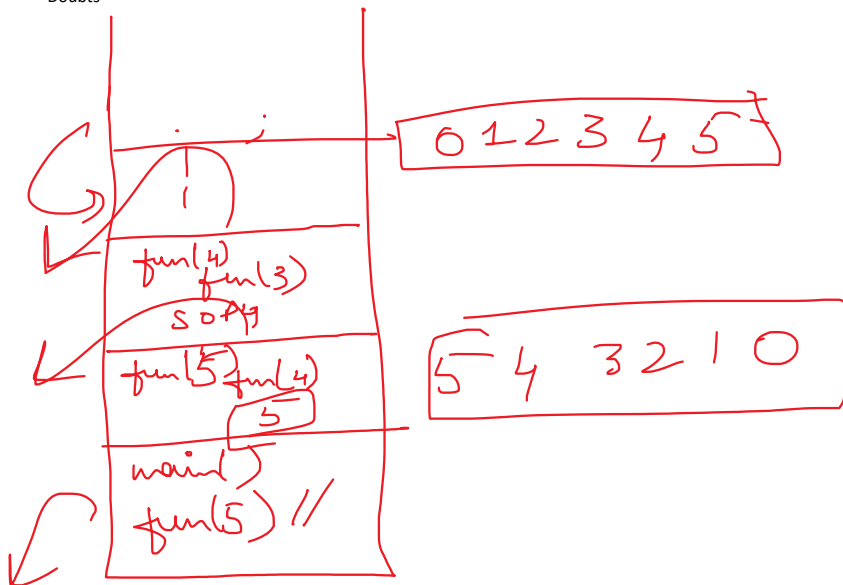


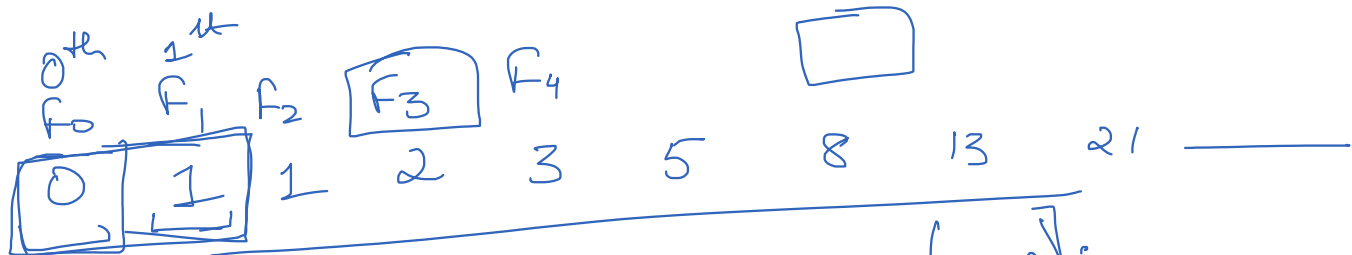
May - 22

22 May 2020 19:34

Ascending Print Recursion  
Fibonacci  
Binary Search (Iterative + Recursive) // Done  
Sliding Window  
Count pair sum  
Doubts



Same Structure



$$fib(n) = fib(n-1) + fib(n-2);$$

Base Condition?

$fib(0) \rightarrow 0$   
 $fib(1) \rightarrow 1$

```
if (n == 0)
    return 0;
if (n == 1)
    return 1;
```

```
if (n <= 1)
    return n;
```

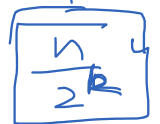
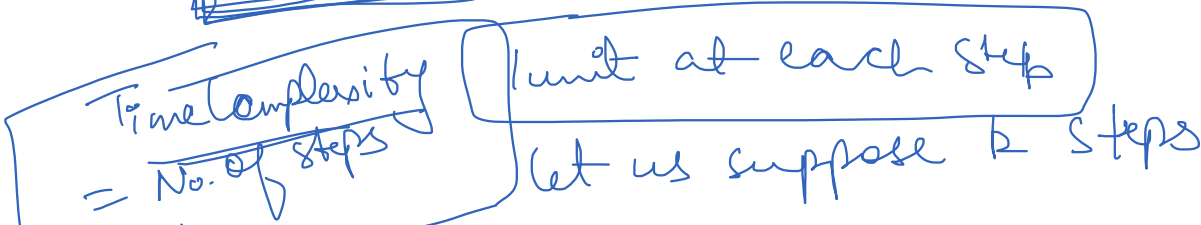
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$$2 + 1 = 3$$


Handwritten notes and diagrams illustrating a sorting process:

- A sequence of numbers: 2, 5, 8, 12, 16, 23. The number 12 is underlined and labeled "end".
- A diagram showing a box labeled "left" with a checkmark and a box labeled "right" with a checkmark, both pointing to the number 12.
- A diagram showing a box labeled "left" with a checkmark and a box labeled "right" with a checkmark, both pointing to the number 16.
- A diagram showing a box labeled "left" with a checkmark and a box labeled "right" with a checkmark, both pointing to the number 23.
- A diagram showing a box labeled "left" with a checkmark and a box labeled "right" with a checkmark, both pointing to the number 38.
- A diagram showing a box labeled "left" with a checkmark and a box labeled "right" with a checkmark, both pointing to the number 72.
- A diagram showing a box labeled "left" with a checkmark and a box labeled "right" with a checkmark, both pointing to the number 1 unit.

Time Complexity

$$\frac{2 + r}{2} \quad \boxed{k?}$$


= No. of steps  
= k } let us suppose R > 1000 [2]  
 We stop when search space = 1

O(k)

$$\frac{n}{2^k} = 1$$

$$n = 2^k$$

$$\log n = \log 2^k$$

$$\log n = k \log 2$$

$$k = \frac{\log n}{\log 2} \left[ \frac{\log a}{\log b} = \log_b a \right]$$

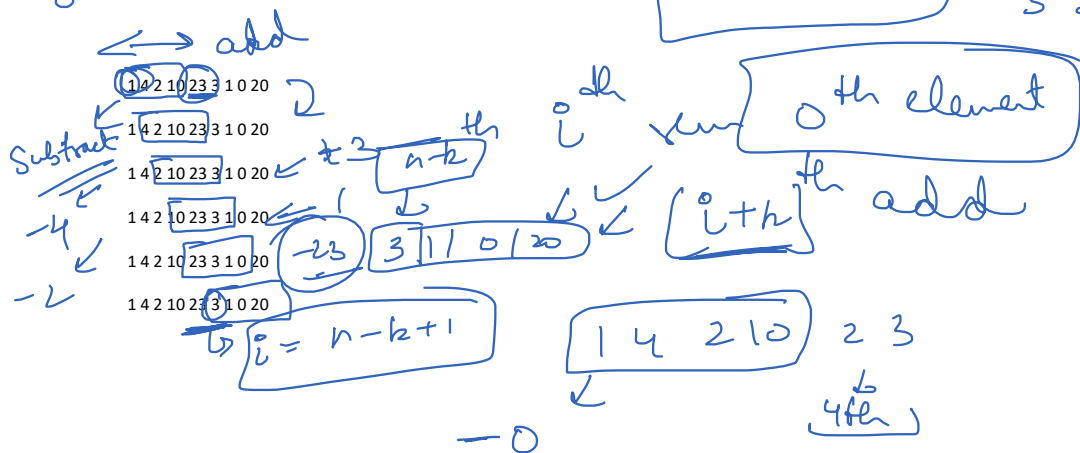
$$k = \log_2 n$$

$$T.C = O(\log_2 n)$$

n	O(n)	O(log n)
1	1	1
10	10 ms	$\log_2 10 \rightarrow 3.32 \text{ ms}$
100	100 ms	6.6 ms
1000		
10000		
$10^6$	100 $\mu$ s	
<u><u><math>10^6</math></u></u>	<u>1666 min</u>	<u>18 sec</u>

Sliding Window

# Sliding Window



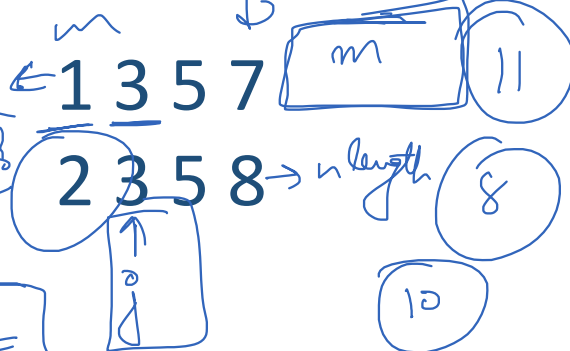
## 2 Pointer Concept

Sum = 10

Count++

1+1 = 2

Add → Sum = 9



$i < m$   
 $j \geq n$