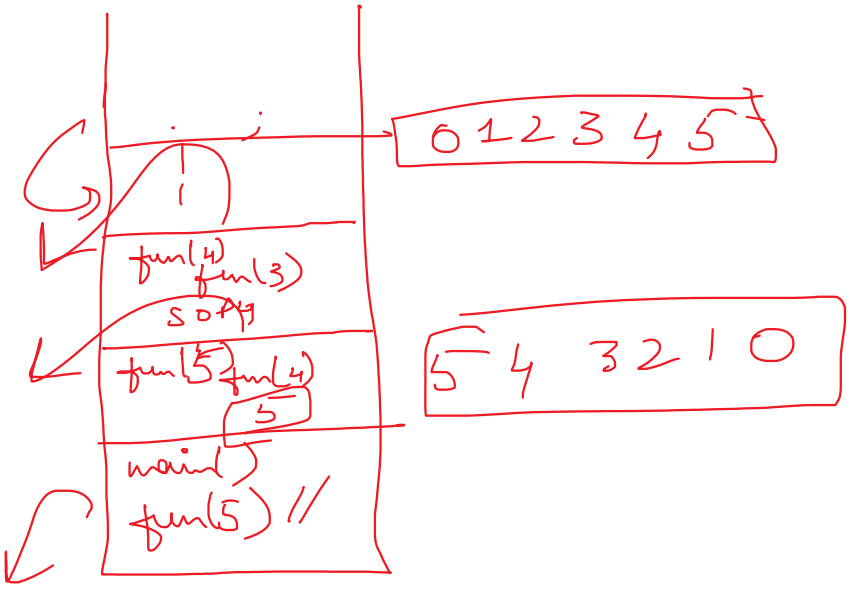
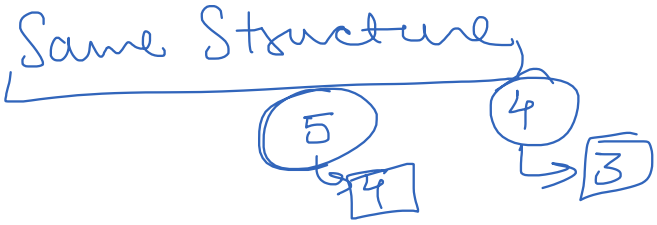
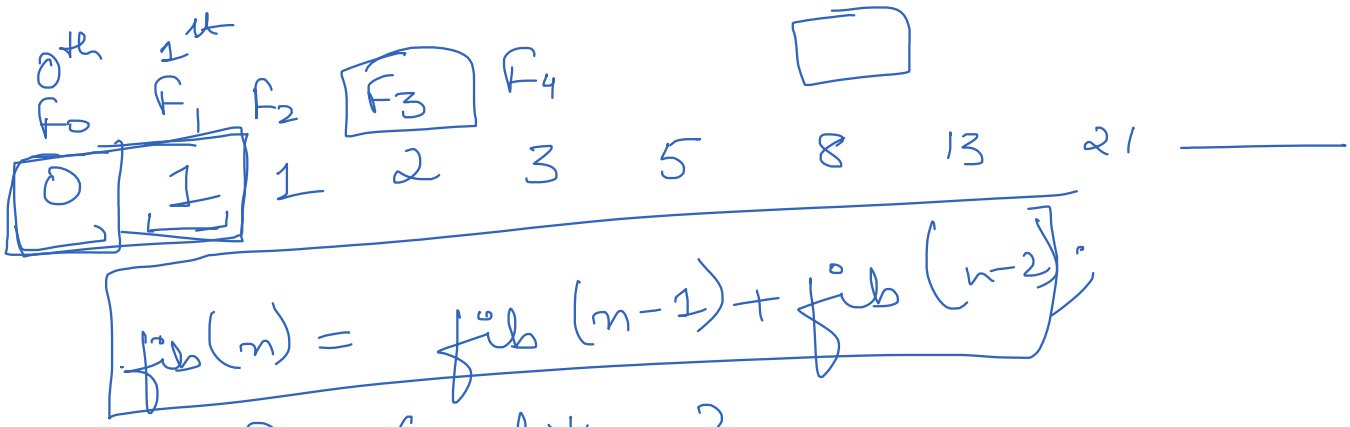
May - 22

22 May 2020 19:34

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







Base Condition ?

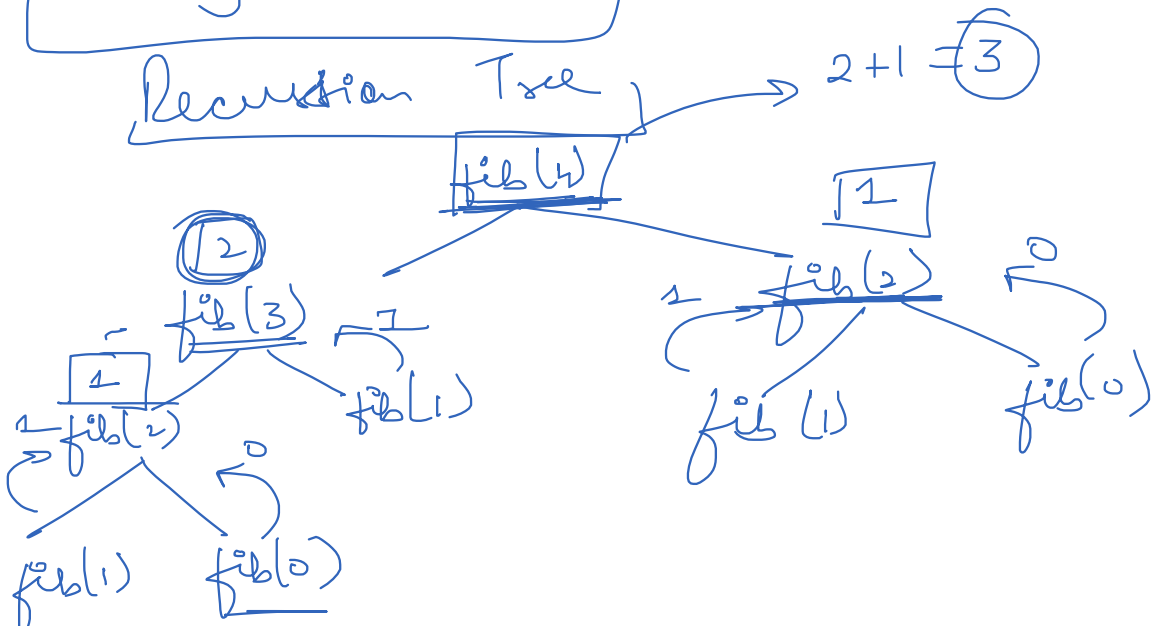
f(0) → 0
f(1) → 1

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

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

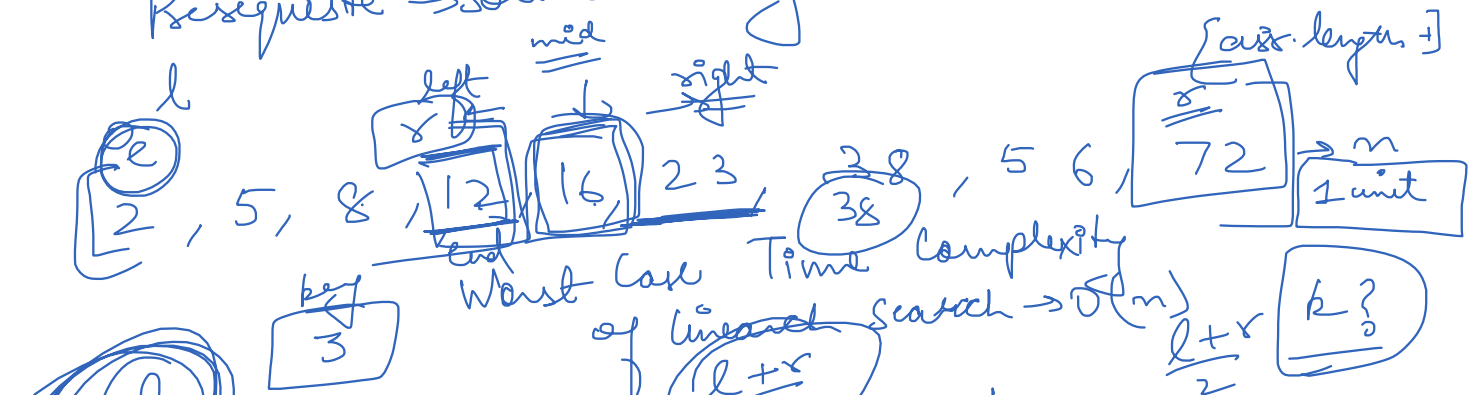
```
if (n<=1)
{ return n;
}
```

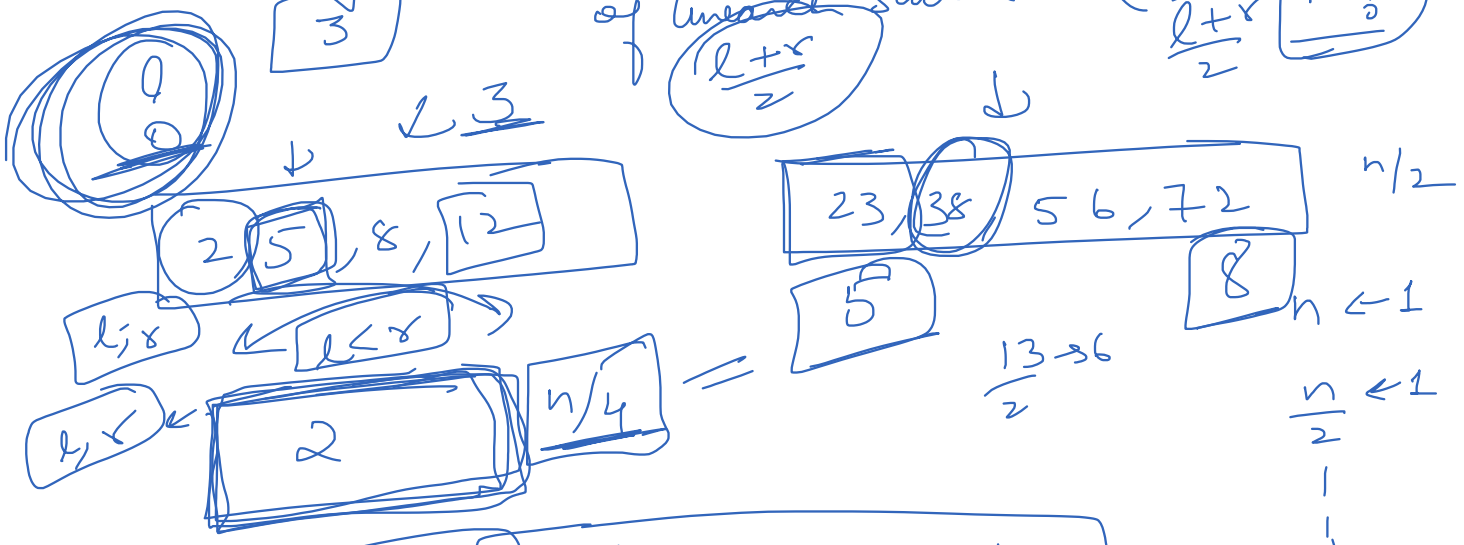
Recursion Tree



Binary Search

Prerequisite → Sorted Array





= No. of steps
= k

Let us suppose k steps

We stop when search space = 1

$O(k)$

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

$$n = 2^k$$

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

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

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

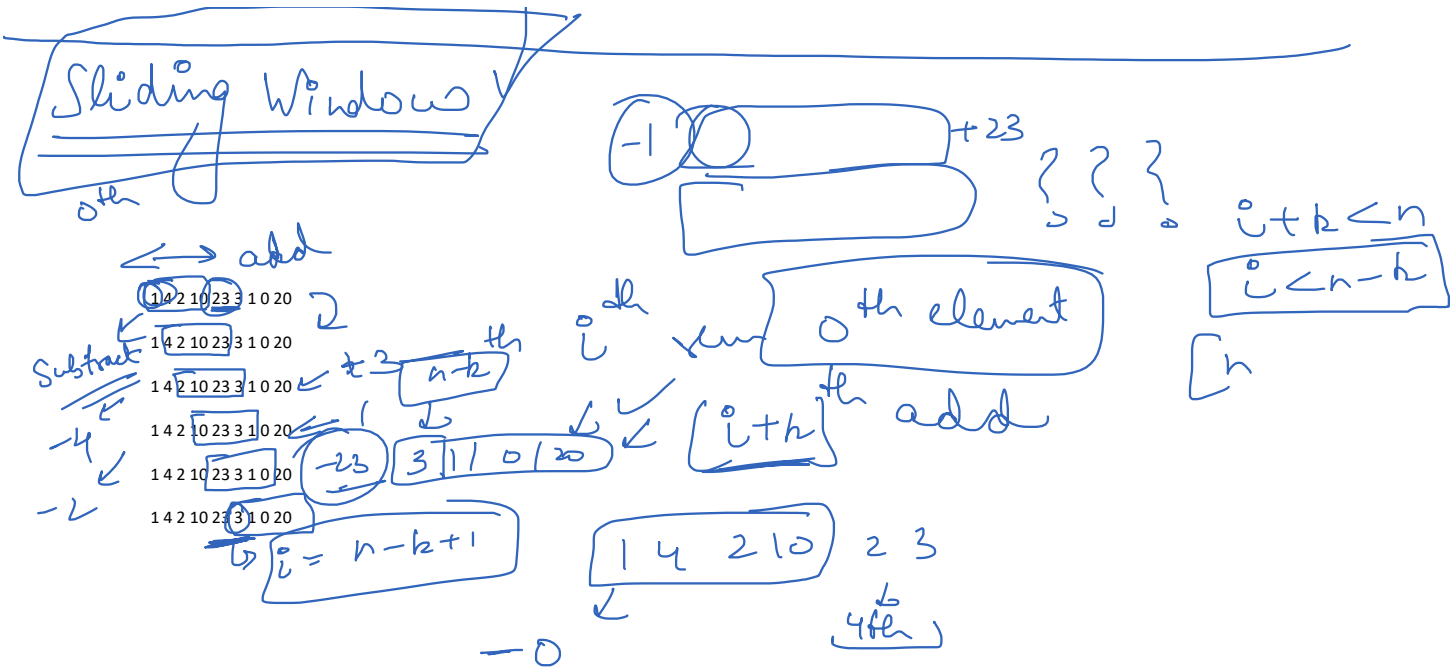
$$k = \log_2 n$$

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

n	O(n)	O(log n)
1	1	1
10	10 ms	$\log_2 10 \rightarrow 3.32$ ms
100	100 ms	6.6 ms
1000		
10000		
10^6	10^6 sec = 1666 min	18 sec

Sliding Window

Sliding Window



2 Pointer Concept