

## 636. Exclusive Time of Functions

Input:  $n = 2$ , logs =

`["0:start:0", "1:start:2", "1:end:5", "0:end:6"]`

Output: `[3,4]`

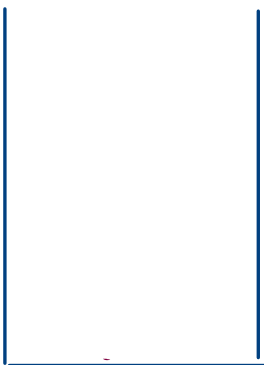
*↪*

*↪ execution time of each function*

*$n \rightarrow$  no. of functions*

*id = 0 to  $n-1$*

*log: id, start/end, t*  
*↓                                  ↓*  
*action                                time*



3	3	2
0	1	2

0: s: 0

1: s: 2

1: e: 4

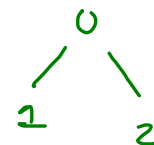
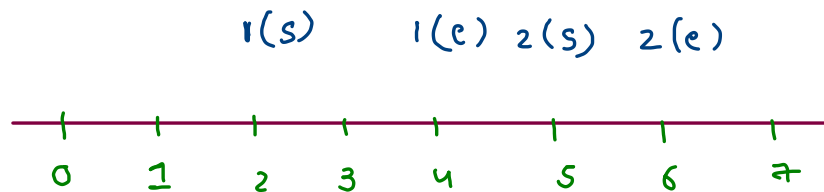
2: s: 5

2: e: 6

0: e: 7

$O(s)$

$O(e)$



$$\text{exec time} = (\text{end} - \text{st} + 1) - \text{wt}$$

↙  
waiting time

pair :

int id

int st

int wt

id, t, wt

$$\text{par. wt} = \sum_{\text{childs}} \text{tts} \left( \begin{array}{l} \text{total} \\ \text{time} \\ \text{spend} \end{array} \right)$$

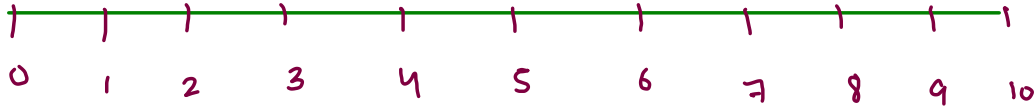
$(id, St, wt)$ 

```

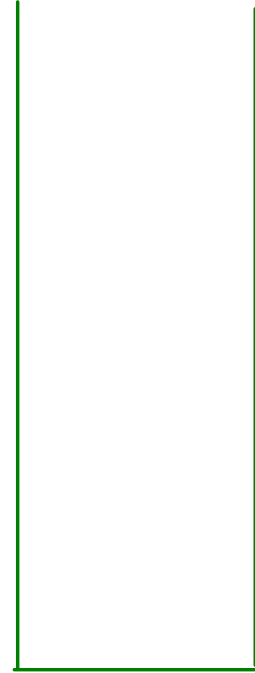
else {
    int tts = t - st.peek().st + 1 ; //execution time + waiting time = total time spend
    int execTime = tts - st.peek().wt;
    ans[st.peek().id] += execTime;
    st.pop();

    if(st.size() > 0) {
        //parent exists
        st.peek().wt += tts;
    }
}

```

$$\begin{array}{ccccccc} o(s) & 1(s) & & 1(e) & o(e) & 2(s) & 2(e) \\ & 2(s) & 2(e) & & & & \end{array}$$


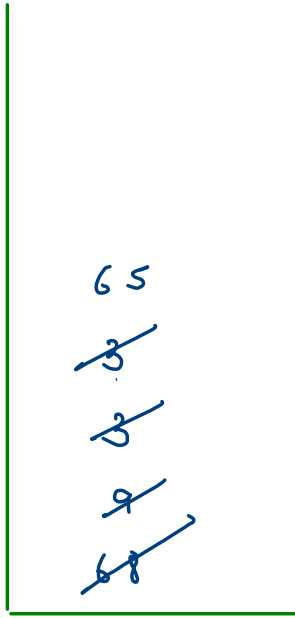
3	2	6
0	1	2


$$\begin{array}{l} 0 : s : 0 \\ 1 : s : 2 \\ 2 : s : 3 \\ 2 : e : 4 \\ 1 : e : 5 \\ 0 : e : 6 \\ 2 : s : 7 \\ 2 : e : 10 \end{array}$$

infix evaluation

$$20 + 5 * (6 + 3 - 1) + 8 - 9 / 3$$

i



value



op