Exclusive Execution Time of Functions

Try to solve the Exclusive Execution Time of Functions problem.

We'll cover the following

Statement

We are given an integer number, `n`, representing the number of functions running in a single-threaded CPU, and an execution log, which is essentially a list of strings. Each string has the format `{function id}:{"start" | "end"}:{timestamp}`, indicating that the function with `function id` either started or stopped execution at the time identified by the `timestamp` value. Each function has a unique ID between 0 and $n - 1$. Compute the exclusive time of the functions in the program.

> **Note:** The exclusive time is the sum of the execution times for all the calls to a specific function.

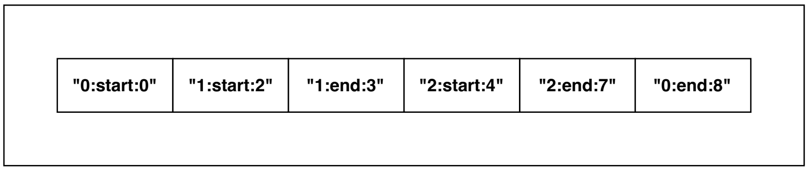
Constraints:

- $1 \leq$ `n` ≤ 100
- $1 \leq$ `logs.length` ≤ 500
- $0 \leq$ `function id` $<$ `n`
- $0 \leq$ `timestamp` $\leq 10^3$
- No two start events and two end events will happen at the same `timestamp`.
- Each function has an `end` log entry for each `start` log entry.

Examples

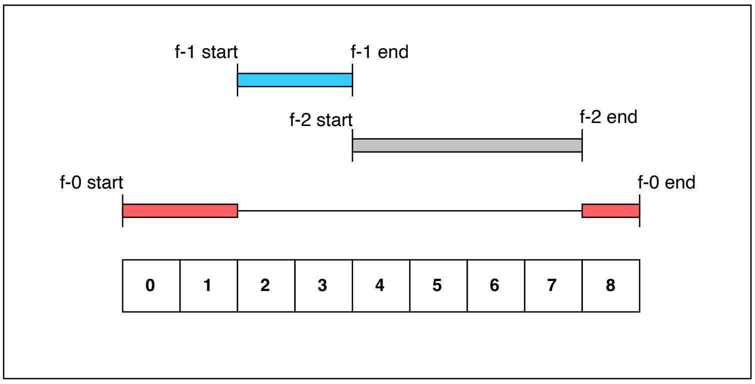
Each function is identified in the logs by a `function id`. Each log entry is formatted in the following way:

```
{function id}:{"start" | "end"}:{timestamp}
```



"0:start:0"	"1:start:2"	"1:end:3"	"2:start:4"	"2:end:7"	"0:end:8"

The above log entries indicate that three functions with IDs `0`, `1`, and `2` are executed as shown in the following figure. The function with ID `0` started execution at time `0` and ended at time `8`. However, since this is a single-threaded CPU, only one function can run at a time. So, when the function with ID `1` starts execution at time `2`, the function with ID `0` is preempted. As soon as the function with ID `1` stops execution at time `3`, the function with ID 2 starts execution, so the function with ID 0 still remains preempted. Finally, the function with ID 2 ends execution at time 7 and the function with ID 0 resumes and finishes execution at time 8.



Our task is to return the total time for which each function ran. For example, the function with ID 0 ran for a total of 3 time units.

Here are some example inputs and the corresponding expected output:

Sample example 1

Input

logs	0:start:0	1:start:2	1:end:3	2:start:4	2:end:7	0:end:8

`n = 3`

Output

3	2	4

1 of 2

Understand the problem

Let's take a moment to make sure you've correctly understood the problem. The quiz below helps you check if you're solving the correct problem:

Exclusive Execution Time of Functions

1 Given the following logs and the value of n, what will be the output?

logs = ['0:start:0', '1:start:6', '1:end:6', '0:end:7']

n = 2

A) [7, 1]

B) [1, 7]

C) [7, 0]

Submit Answer

Question 1 of 2
0 attempted

Reset Quiz

Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.

Drag and drop the cards to rearrange them in the correct sequence.

Retrieve function ID, start/end and timestamp from the log string.

If the string contains “start”, push the log details to the stack.

Else if, the string contains “end”, pop from the stack and compute the function’s execution time.

If the stack is not empty after the pop operation, subtract the execution time of the called function from the calling function.

Store the execution time in a results array and return.

Reset Show Solution Submit

Try it yourself

supporting code to implement your solution.

Java

main.java

Event.java

```java
import java.util.*;

public class Main{
    // Tip: You may use some of the code templates provided
    // in the support files
    public static List<Integer> exclusiveTime(int n, List<String> events) {

        // Your code will replace this placeholder return statement

        return new ArrayList<>();
    }
}
```

Powered by AI

Submit

Test Cases Results

Case 1 Case 2 Case 3

Input #1

1

Input #2

["0:start:0","0:start:2","0:end:5","0:start:6","0:end:6","0:end:7"]

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← Back

Solution: Minimum Re...

Next →

Solution: Exclusive Ex...

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