Problem 3440: Reschedule Meetings for Maximum Free Time II

Problem Information

Difficulty: Medium
Acceptance Rate: 60.43%
Paid Only: No
Tags: Array, Greedy, Enumeration

Problem Description

You are given an integer `eventTime` denoting the duration of an event. You are also given two integer arrays `startTime` and `endTime`, each of length `n`.

These represent the start and end times of `n` **non-overlapping** meetings that occur during the event between time `t = 0` and time `t = eventTime`, where the `ith` meeting occurs during the time `[startTime[i], endTime[i]].`

You can reschedule **at most** one meeting by moving its start time while maintaining the **same duration** , such that the meetings remain non- overlapping, to **maximize** the **longest** _continuous period of free time_ during the event.

Return the **maximum** amount of free time possible after rearranging the meetings.

Note that the meetings can **not** be rescheduled to a time outside the event and they should remain non-overlapping.

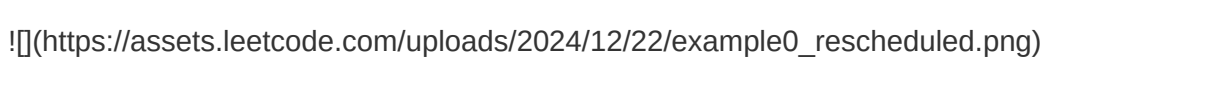
Note: _In this version_ , it is **valid** for the relative ordering of the meetings to change after rescheduling one meeting.

Example 1:

Input: eventTime = 5, startTime = [1,3], endTime = [2,5]

Output: 2

Explanation:



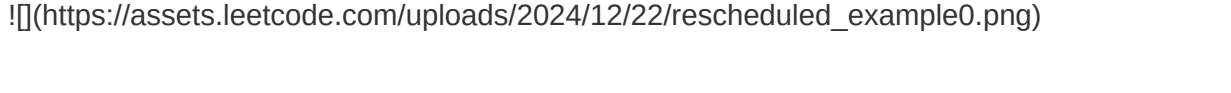
Reschedule the meeting at `[1, 2]` to `[2, 3]`, leaving no meetings during the time `[0, 2]`.

Example 2:

Input: eventTime = 10, startTime = [0,7,9], endTime = [1,8,10]

Output: 7

Explanation:



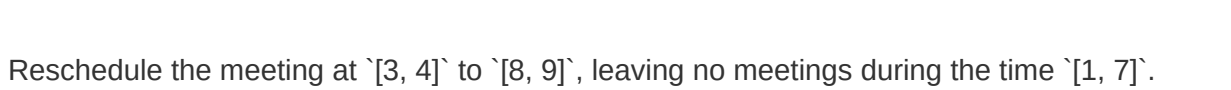
Reschedule the meeting at `[0, 1]` to `[8, 9]`, leaving no meetings during the time `[0, 7]`.

Example 3:

Input: eventTime = 10, startTime = [0,3,7,9], endTime = [1,4,8,10]

Output: 6

Explanation:

**  **

Reschedule the meeting at `[3, 4]` to `[8, 9]`, leaving no meetings during the time `[1, 7]`.

Example 4:

Input: eventTime = 5, startTime = [0,1,2,3,4], endTime = [1,2,3,4,5]

Output: 0

Explanation:

There is no time during the event not occupied by meetings.

Constraints:

* `1 <= eventTime <= 109` * `n == startTime.length == endTime.length` * `2 <= n <= 105` * `0 <= startTime[i] < endTime[i] <= eventTime` * `endTime[i] <= startTime[i + 1]` where `i` lies in the range `[0, n - 2]`.

Code Snippets

C++:

```
class Solution {
public:
int maxFreeTime(int eventTime, vector<int>& startTime, vector<int>& endTime)
{

}
};
```

Java:

```
class Solution {
public int maxFreeTime(int eventTime, int[] startTime, int[] endTime) {

}
}
```

Python3:

```
class Solution:
def maxFreeTime(self, eventTime: int, startTime: List[int], endTime:
List[int]) -> int:
```