Reckless drivers

locked

Problem Submissions Leaderboard Discussions

A digital company developed the mobile app ktm that rewards drivers cursing at other drivers.

Every time the app detects a swear word, it starts recording the sounds in the cabin for some time and then sends the clip to a remote backend for scoring.

For example, if the app is set up to record for 5 seconds and it detects a swear word at second 2 then it records from 2 to $2 + 5 = 7$.

The revolutionary part is the support for *combos*: detecting new swear words while the recording is ongoing makes the app join them together. In the example, if the app detects a different swear word at second 4, it joins the current recording (from 2 to 7) and the new one (from 4 to 9) together, making a 7-second clip (basically, from 2 to 9).

Given the recording $duration$ and a time series of N detections, print the *total* number of seconds recorded by the app, even discontinuously. Your program will be crucial for optimizing the backend of the system.

Input Format

The first line contains N and $duration$.

The second line contains N space-separated seconds corresponding to the detections (the time series ts).

Constraints

- $1 \leq N \leq 10^5$
- $1 \leq duration, ts[i] \leq 3 \cdot 10^5$
- ts is sorted in non-decreasing order

Output Format

One integer, denoting the total number of seconds recorded

Sample Input 0

```
2 2
1 2
```

Sample Output 0

```
3
```

Explanation 0

We have $duration = 2$ and $N = 2$ detections.

The app starts recording at second 1 for 2 seconds (up to second 3). While the first recording is ongoing, a new swear word gets detected at second 2, thus the app merges the current recording (from 1 to 3) with the new one (from 2 to 4). The total number of seconds recorded is 3.

Sample Input 1

```
3 2
1 4 8
```

Sample Output 1

```
6
```

Explanation 1

We have $duration = 2$ and $N = 3$ detections.

The app records at second 3 for 2 seconds. Then it triggers again at second 4 for 2 seconds. Finally, the last recording starts at second 8 for 2 seconds. The total number of seconds recorded is 6.

Sample Input 2

```
3 5
2 4 10
```

Sample Output 2

```
12
```

Explanation 2

We have $duration = 5$ and $N = 3$ detections.

The app starts recording at second 2 for 5 seconds. At second 4 a new swear word gets detected then the app extends the recording up to second 9 (total of 7 seconds). Finally, the app records from secondd 10 to 15 (total of 5 seconds). The total lenght of the clip is 12 seconds.

Submissions: 11
Max Score: 20
Difficulty: Easy

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C++

```cpp
#include <cmath>
#include <cstdio>
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;


int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}

```

Upload Code as File Test against custom input Line: 1 Col: 1 Run Code Submit Code