☆ Turnstile

A university has exactly one turnstile. It can be used either as an exit or an entrance. Unfortunately, sometimes many people want to pass through the turnstile and their directions can be different. The i^{th} person comes to the turnstile at *time[i]* and wants to either exit the university if *direction[i] = 1* or enter the university if *direction[i] = 0*. People form *2* queues, one to exit and one to enter. They are ordered by the time when they came to the turnstile and, if the times are equal, by their indices.

If some person wants to enter the university and another person wants to leave the university at the same moment, there are three cases:

- If in the previous second the turnstile was not used (maybe it was used before, but not at the previous second), then the person who wants to leave goes first.
- If in the previous second the turnstile was used as an exit, then the person who wants to leave goes first.
- If in the previous second the turnstile was used as an entrance, then the person who wants to enter goes first.

Passing through the turnstile takes *1* second.

For each person, find the time when they will pass through the turnstile.

Function Description

Complete the function *getTimes* in the editor below. The function must return an array of *n* integers where the value at index *i* is the time when the i^{th} person will pass the turnstile.

getTimes has the following parameters:

time: an array of *n* integers where the value at index *i* is the time in seconds when the i^{th} person will come to the turnstile

direction: an array of *n* integers where the value at index *i* is the direction of the i^{th} person

Constraints

- $1 \le n \le 10^5$
- $0 \le time[i] \le 10^9$ for $0 \le i \le n - 1$
- $time[i] \le time[i + 1]$ for $0 \le i \le n - 2$
- $0 \le direction[i] \le 1$ for $0 \le i \le n - 1$

Input Format For Custom Testing

Sample Case 0

Sample Input 0

```
4
0
0
1
5
4
0
1
1
0
```

Sample Output 0

```
2
0
1
5
```

```
n = 4
time = [0, 0, 1, 5]
direction = [0, 1, 1, 0]
```

At time *0*, persons *0* and *1* want to pass through the turnstile. Person *0* wants to enter the university and person *1* wants to leave the university. The turnstile was not used in the previous second, so the priority is on the side of the person *1*.
At time *1*, persons *0* and *2* want to pass through the turnstile. Person *2* wants to leave the university and at the previous second the turnstile was used as an exit, so the person *2* passes through the turnstile.
At time *2*, person *0* passes through the turnstile.
At time *5*, person *3* passes through the turnstile.

Sample Case 1

Sample Input 1

```
5
0
1
1
3
3
5
0
1
0
0
1
```

Sample Output 1

```
0
2
1
4
3
```

Explanation 1

```
n = 5
time = [0, 1, 1, 3, 3]
direction = [0, 1, 0, 0, 1]
```

At time *0*, person *0* passes through the turnstile (enters).
At time *1*, persons *1* (exit) and *2* (enter) want to pass through the turnstile, and person *2* passes through the turnstile because his direction is equal to the direction at the previous second.
At time *2*, person *1* passes through the turnstile (exit).
At time *3*, persons *3* (enter) and *4* (exit) want to pass through the turnstile. Person *4* passes through the turnstile because at the previous second the turnstile was used to exit.
At time *4*, person *3* passes through the turnstile.

YOUR ANSWER

Mindtree
Welcome to possible

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to test end

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View Code Diff

C++

```
1   #include <bits/stdc++.h>···
9
10  /*
11   * Complete the 'getTimes' function below.
12   *
13   * The function is expected to return an INTEGER_ARRAY.
14   * The function accepts following parameters:
15   *  1. INTEGER_ARRAY time
16   *  2. INTEGER_ARRAY direction
17   */
18
19  vector<int> getTimes(vector<int> time, vector<int> direction) {
20
21  }
22
23  int main()···
```

Line: 9 Col: 1

Test against custom input

Run Code

Submit code & Continue

(You can submit any number of times)

Download sample test cases *The input/output files have Unix line endings. Do not use Notepad to edit them on windows.*