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# C. Racing

time limit per test: 2 seconds memory limit per test: 256 megabytes

In 2077, a sport called hobby-droning is gaining popularity among robots.

You already have a drone, and you want to win. For this, your drone needs to fly through a course with  $\boldsymbol{n}$  obstacles.

The i-th obstacle is defined by two numbers  $l_i, r_i$ . Let the height of your drone at the i-th obstacle be  $h_i$ . Then the drone passes through this obstacle if  $l_i \leq h_i \leq r_i$ . Initially, the drone is on the ground, meaning  $h_0 = 0$ .

The flight program for the drone is represented by an array  $d_1,d_2,\ldots,d_n$ , where  $h_i-h_{i-1}=d_i$ , and  $0\leq d_i\leq 1$ . This means that your drone either does not change height between obstacles or rises by 1. You already have a flight program, but some  $d_i$  in it are unknown and marked as -1. Replace the unknown  $d_i$  with numbers 0 and 1 to create a flight program that passes through the entire obstacle course, or report that it is impossible.

### Input

Each test contains multiple test cases. The first line contains the number of test cases t (  $1 \le t \le 10^4$ ). The description of the test cases follows.

In the first line of each test case, an integer n ( $1 \le n \le 2 \cdot 10^5$ ) is given — the size of the array d

In the second line of each test case, there are n integers  $d_1,d_2,\ldots,d_n$  ( $-1\leq d_i\leq 1$ )—the elements of the array d.  $d_i=-1$  means that this  $d_i$  is unknown to you.

Next, there are n lines containing 2 integers  $l_i, r_i$  ( $0 \le l_i \le r_i \le n$ ) — descriptions of the obstacles.

It is guaranteed that the sum of n across all test cases does not exceed  $2 \cdot 10^5$ .

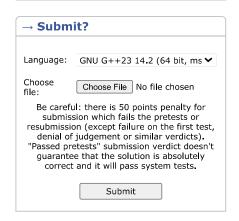
## Output

For each test case, output n integers  $d_1, d_2, \ldots, d_n$ , if it is possible to correctly restore the array d, or -1 if it is not possible.

# Example

| input                | Сору |
|----------------------|------|
| 5                    |      |
| 4<br>0 -1 -1 1       |      |
| 0 4                  |      |
| 1 2                  |      |
| 2 4                  |      |
| 1 4                  |      |
| 3<br>0 -1 -1         |      |
| 0 1                  |      |
|                      |      |
| 2 2 0 3              |      |
| 2                    |      |
| -1 -1<br>0 0         |      |
| 2 2                  |      |
| 8                    |      |
| -1 -1 1 -1 -1 0 0 -1 |      |
| 0 0                  |      |
| 0 1<br>0 2           |      |
| 0 2                  |      |
| 1 3                  |      |
| 0 4                  |      |
| 2 5                  |      |
| 4 5<br>1             |      |
| <u>*</u>             |      |

# Codeforces Round 1026 (Div. 2) Contest is running 01:33:31 Contestant



| → Last submissions |                      |                 |  |
|--------------------|----------------------|-----------------|--|
| Submission         | Time                 | Verdict         |  |
| 321079787          | May/24/2025<br>17:58 | Pretests passed |  |

| → Score table           |       |  |
|-------------------------|-------|--|
|                         | Score |  |
| <u>Problem A</u>        | 452   |  |
| <u>Problem B</u>        | 678   |  |
| <u>Problem C</u>        | 1356  |  |
| <u>Problem D</u>        | 1808  |  |
| <u>Problem E</u>        | 2034  |  |
| <u>Problem F</u>        | 2712  |  |
| Successful hack         | 100   |  |
| Unsuccessful hack       | -50   |  |
| Unsuccessful submission | -50   |  |
| Resubmission            | -50   |  |

<sup>\*</sup> If you solve problem on 00:24 from the first attempt

```
0
1 1

output

Copy

0 1 1 1
-1
-1
0 1 1 0 1 0 0 1
-1
```

### Note

In the first test case, one possible answer is d=[0,1,1,1]. The array h will be [0,0+1,0+1+1,0+1+1]=[0,1,2,3]. This array meets the conditions of the problem.

In the second test case, it can be proven that there is no suitable array d, so the answer is -1.

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