Q1 - Print the path

In order to help you get familiar with the dungeon homework, here is the practice for basic doubly linked list to simulate the implementation for linking rooms for dungeon.

Daisy walks through several rooms but she doesn't want to memorize the index of these rooms she has walked by. Please help her print the path she walks through.

The rooms are at the same corridor. Daisy can only pass by the room by going LEFT and RIGHT.

You are given a bunch of room indexes from the first room to the last room of the corrider. You have to link all the rooms together.

Then you are given a series of Daisy's movement, "r" represents going right and "l" represents going left. You have to print out the path (which represents by a series of the index of the rooms that Daisy has passed by). Print out -1 if the movement is invalid, for example, going left at the first room of the corridor, or going right at the last room of the corridor.

Input Format

In the first line, you are given an integer representing the total number of the rooms in the corridor.

In the second line are the indexes of the rooms from the first to the last one.

There are an integer and several movements in the last line. The integer represents the total number of movements in the path.

Constraints

Please use linked list to implement.

Output Format

Print out the path in one line. Notes that the path starts with the index of the first room and ends with the index of the room Daisy stopped(but if the last movement is invalid, the last output will be -1). In other words, n movements produce n+1 output.

Sample Input 0

```
3
2 10 5
4 l r r r
```

Sample Output 0

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2 -1 10 5 -1
```

Explanation 0

Daisy is at room 2. Going left is invalid, output -1. Go right to room 10. Go right to room 5. Going right is invalid, ouput -1.