

- IH  $i$  : Insert head. Insert a new node with integer  $i$  to the head of the linked list.
- IT  $i$  : Insert tail. Insert a new node with integer  $i$  to the tail of the linked list.
- RH : Remove head. Remove the node at the head of the linked list. (If the linked list is empty, don't do anything.)
- RT : Remove tail. Remove the node at the tail of the linked list. (If the linked list is empty, don't do anything.)
- S  $i$  : Search. Traverse the linked list and find if there exists a node with integer  $i$ . If yes, print a line "Y". Otherwise, print a line "N". (If the linked list is empty, print a line "E".)
- O : Output. Traverse the linked list from head to tail. Print the integers saved in the nodes sequentially. (If the linked list is empty, print a line "E".)

Input

The first line is an integer  $n$ , being the number of operations. Following  $n$  lines, each line contains one operation described above.

Restrictions

- For testcase 1,  $1 \leq n \leq 10^4$
- For testcase 2,  $1 \leq n \leq 10^5$
- For testcase 3, testcase 4 and testcase 5,  $1 \leq n \leq 10^6$
- In each testcase,  $1 \leq i \leq 99$  for every  $i$  in "Insert head", "Insert tail" and "Search" operations
- In each testcase, it is guaranteed that the total number of "Search" operations and "Output" operations will not exceed 50

Note that:

- In single testcase, the integers  $i$  of "Insert head" and "Insert tail" operations may duplicate.
- You may receive operations "Remove head", "Remove tail", "Search" or "Output" when the linked list is empty.

Output

For each "Search" operation and "Output" operation, output one line.

Sample Input 1

```
11
IT 7
```

Sample Output 1

```
5 7 4
Y
```

Submissions

Rankings

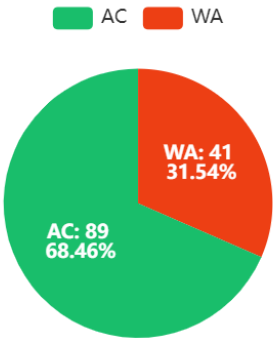
View Contest

Information

|              |             |
|--------------|-------------|
| ID           | 2           |
| Time Limit   | 1000MS      |
| Memory Limit | 256MB       |
| IO Mode      | Standard IO |
| Created By   | ta_david    |
| Level        | Mid         |
| Score        | 100         |
| Tags         | Show        |

Statistic

Details



0

RT

0

S 5

Sample Input 2

21

IT 4

IH 8

RT

IT 7

0

IT 7

0

RT

RT

RT

RT

0

IT 6

IT 3

S 99

0

S 3

RH

RH

0

S 3

Sample Output 2

8 7

8 7 7

E

N

6 3

Y

E

E

Hint

You may reference following structure to construct your linked list.

```
struct Node
{
    int data;
    Node *prev;
    Node *next;
};
```

Language:

C

Theme:

Solarized Light



1

You have solved the problem

Submit for Sample Test

Submit

Contest has ended

Sample Test Input

Sample Test Output

11  
IT 7  
IH 5  
IT 4  
0  
S 4  
RH  
S 7  
0  
RT  
0  
S 5