

## Problem C. Find The House

Input file: *standard input*  
Output file: *standard output*  
Time limit: 1 second  
Memory limit: 1024 mebibytes

Youngee is currently on a one-dimensional road and looking for her friend Jisun's house. To know the exact position of Jisun's house, Youngee sends a message to Jisun with her current position (assume that all the positions are represented as integers). A couple of minutes later, Youngee gets a reply as a list of  $n$  triples from Jisun with an additional explanation as follows:

- For each triple  $(i, j, k)$  in the list,  $i$  is an integer which denotes the current position,  $j$  denotes the direction to move from  $i$ , represented as  $L$  (left) or  $R$  (right), and  $k$  is a positive integer which denotes the distance to move from  $i$ .
- For any two triples  $(i, j, k)$  and  $(i', j', k')$  in the list,  $i$  and  $i'$  are distinct.
- If you are currently on the position  $i$ , there always exists a triple  $(i, j, k)$  in the list (unless all the triples in the list are referred before). In this case, refer to the triple  $(i, j, k)$  and move to  $i - k$  (if  $j = L$ ) or  $i + k$  (if  $j = R$ ).
- Each of the triples in the list is referred exactly once.
- The position after referring to all the triples in the list is a position of Jisun's house.

For example, suppose Youngee is currently at the position 0 with a list of four triples:  $(3, R, 4)$ ,  $(0, L, 2)$ ,  $(7, L, 5)$ , and  $(-2, R, 5)$ . Then Youngee first refers to the triple  $(0, L, 2)$  and move to the position  $0 - 2 = -2$ . After that, Youngee refers to the triples  $(-2, R, 5)$ ,  $(3, R, 4)$ , and  $(7, L, 5)$  in order and moves to the position 2, which is the position of Jisun's house. Given  $n$ , Youngee's current position, and a list of  $n$  triples, write a program to find Jisun's house's position.

### Input

Your program is to read from standard input. The input starts with a line containing an integer  $n$  ( $1 \leq n \leq 10\,000$ ), where  $n$  is the number of triples in the list. In the following  $n$  lines,  $n$  triples are given where each triple is represented as three values  $i$ ,  $j$ , and  $k$ , consisting of two integers  $i$  and  $j$  and one character  $k$  ( $-1,000,000 \leq i \leq 1,000,000$ ,  $j \in \{L, R\}$ , and  $1 \leq k \leq 2\,000\,000$ ). After  $n$  lines of triples, there is a line containing Youngee's current position as an integer between  $-1,000,000$  and  $1,000,000$ .

### Output

Your program is to write to standard output. Print exactly one line. The line should contain the position of Jisun's house.



## Examples

standard input	standard output
4 3 R 4 0 L 2 7 L 5 -2 R 5 0	2
5 3 L 3 -1 R 11 5 L 6 1 R 4 10 L 7 1	0