Quicksort

Your friend has been trying to write a quicksort algorithm in assembler, but it isn't working. He suspects that some lines of code are never getting called, but can't work out which. In desperation he asks you if you can help find them.

Your friend's assembler programme can be reduced to three different types of instructions. The instruction contained in each line of code determines which line will be executed next. The programme always begins by executing the first line of code. When it reaches a line after the final line of code, it terminates. The following types of instructions are available:

cont	Execution will continue at the line after this one
jump n	Execution will continue at the nth line of code
branch x y	Execution may continue at either the xth or yth line of code

For example, here is an assembler programme and the corresponding possible ways to move from line to line:

1	cont
2	cont
3	jump 5
4	branch 6 3
5	branch 4 7
6	jump 2
7	cont

In this example, you can see that it is possible for every line of code to be called.

Input

The first line of input consists of an integer N, where 1 <= N <= 10000. Following this are N lines, which correspond to lines of assembler code and have one of the following forms:

Input line	Assembler code	Constraint
1	cont	
2x	jump x	1 <= x <= N
3x‘ ‘y	branch x y	1 <= x, y <= N

Output

The output file should consist of a single integer representing the number of lines of assembler code which can never be executed. Note that the end of the programme (displayed in the diagrams here as "end") does not count as a line of code.

Sample Input 1

```
7
1
1
```

```
2 5
3 6 3
3 4 7
2 2
1
```

Sample Output 1

```
0
```

The first set of sample data above corresponds to the earlier example, in which every line of code may be called.

Sample Input 2

```
8
1
3 4 6
1
2 3
1
2 8
1
1
```

Sample Output 2

```
2
```

The second set of data above corresponds to the assembler programme shown below, where lines 5 and 7 can never be reached:

1	cont
2	branch 4 6
3	cont
4	jump 3
5	cont
6	jump 8
7	cont
8	cont

Scoring

The score for each input file will be 100% if the correct answer is written to the output file, and 0% otherwise.

Subtasks

For Subtask 1 (30 marks), there will be no branch operations.

For Subtask 2 (70 marks), no further constraints apply. <\ul<