lower case characters. You are going to perform q operations. Each operation is in the following format:

1. `E i j` : Check if s_i and s_j are identical?
2. `C i j` : Update s_i to be the concatenation of s_i and s_j. For example, if s_i = "star" and s_j = "burst", then the concatenation of s_i and s_j will be "starburst".

Input

The first line contains integer n and q.

The following n lines are the strings, with the i-th line containing s_i.

The following q lines are the queries described in the problem description.

Constraints

- $1 \leq n, q \leq 100$
- Length **sum** of all strings ≤ 5000 (i.e. $\sum_{i=1}^{n} |s_i| \leq 5000$)
- Length of each string after concatenation ≤ 5000

Output

For each operation `E i j`, please output 'Y' if s_i and s_j are identical, 'N' otherwise.

Sample Input 1

```
3 7
star
burst
starburst
E 1 2
E 2 3
E 1 3
C 1 2
E 1 2
E 2 3
E 1 3
```

Sample Output 1

```
N
N
N
N
N
Y
```

Hint

Details on scoring rubrics (input constraint) in this problem:

> Note: You can see test case ID in the submission page of this problem (e.g. adalab.cs.nthu.edu.tw/status/xxx...x)

For test case ID 1 (10% of total score):

- Identical to sample input

Submissions

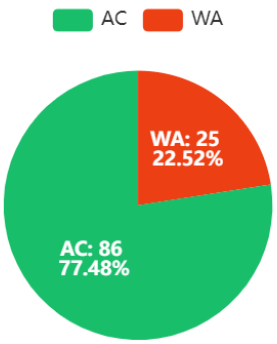
Rankings

View Contest

Information

ID	1
Time Limit	1000MS
Memory Limit	256MB
IO Mode	Standard IO
Created By	ta_redleaf
Level	Hidden
Score	100
Tags	Show

Statistic Details



> Apologies from the author of this problem:
>
> I originally wanted to make the test case larger so that you can feel the power of hashing. However the test cases are bloody difficult to generate and verify. And I am running out of time and energy. QAQ

Language: C Theme: Solarized Light

```
1
```

You have solved the problem

Contest has ended

Submit for Sample Test Submit

Sample Test Input

```
3 7
star
burst
starburst
E 1 2
E 2 3
E 1 3
C 1 2
E 1 2
E 2 3
E 1 3
```

Sample Test Output