Problem B
Blue or Red?
Time limit: 1 second
Memory limit: 2048 megabytes

Problem Description

In the White Kingdom, there are two long-standing countries, namely Red and Blue. The two countries used to live well together, but through the TV seasons of Red vs. Blue, their relationship has grown with tensions, until finally they decided to break up. Now they are going to attract the n cities to join their party.

Prior to separation, all cities are neutral (neither red nor blue). Two different cities may be connected with a road to trade with each other. The cities are connected with m roads, in a way such that each city can be reached from any other city through the roads. During separation, each road is marked as red or blue by the White Assembly, which could not be changed anymore, but they assured us that each city is has both red and blue roads connected to it.

Each city should join either the Red country or the Blue country. The cities that belong to Red after separation are red cities, and the cities that belong to Blue are blue cities. For a separation plan to be valid, it has to satisfy both countries' conditions, all cities' conditions, and the declarations of city friendships.

The countries' conditions stated that red cities can only use red roads, while blue cities can only use blue roads. That is to say, a city needs to destroy all adjacent roads that have a different color from itself. To avoid all roads of a city being broken by neighboring cities, the countries allowed each city to pick **at least one** important red road and **at least one** important blue road adjacent to it. The country has to protect the important roads of the same color from destruction for cities that joined them (for example, Red should not allow important red roads listed by red cities to be destroyed).

The cities' conditions are simple. Some cities want to join Red, some others want to join Blue, and the rest are okay with joining either one.

Finally, we need to satisfy p pairs of relationship declarations. Some pairs of cities have declared friendly relationships with each other, while some other pairs of cities have declared unfriendly relationships. Two friendly cities want to join the same country, while two unfriendly cities want to join different countries.

We need to ensure that all conditions are satisfied to avoid rampant crimes such as crowd fighting and smuggling. Please help the two countries plan for the cities by telling each of them which country it should join, or tell them it is impossible to satisfy every condition.

Input Format

The first line contains three integers n, m and p.

The next line contains a string with n characters $t_1 t_2 \ldots t_n$ denoting the cities' conditions: $t_i = \mathtt{r}$ means city i wants to join Red, $t_i = \mathtt{b}$ means city i wants to join Blue, and $t_i = \mathtt{x}$ means city i can join either.

Each of the next m lines contains two integers a, b and three characters c, x and y describing a road connecting the cities a and b:

- If $c = \mathtt{r}$ then the road is red, otherwise if $c = \mathtt{b}$ then the road is blue.

- If $x = \mathtt{y}$ then the road is important to a, otherwise if $x = \mathtt{n}$ then it's not.

- If $y = \mathtt{y}$ then the road is important to b, otherwise if $y = \mathtt{n}$ then it's not.

Each of the next p lines contains a string x and two integers a and b describing a relationship declaration between cities a and b: $x = \mathtt{good}$ means it's a friendly relationship, $x = \mathtt{bad}$ means it's an unfriendly relationship.

Output Format

If there is no valid plan that satisfies every condition, print "No" (without quotes). Otherwise, print "Yes" on the first line, and on the second line, print a string with n characters $u_1 u_2 \ldots u_n$ describing a valid plan. For each $i = 1, 2, \ldots, n$, $u_i = \mathtt{r}$ means city i should join Red, and $u_i = \mathtt{b}$ means city i should join Blue.

Technical Specification

- $1 \leq n \leq 1000$

- $1 \leq m \leq 3000$

- $1 \leq p \leq \binom{n}{2}$

Sample Input 1

```
4 6 2
rxbx
1 2 r y y
3 4 b y y
1 3 r n y
1 4 b y n
2 3 b y n
2 4 r n y
good 1 2
bad 2 4
```

Sample Output 1

```
Yes
rrbb
```

Sample Input 2

```
4 4 1
xxxx
1 2 r y y
2 3 b y y
3 4 r y y
4 1 b y y
bad 1 2
```

Sample Output 2

```
No
```