UTS Open '15 #2 - Secret Code

Time limit: 0.6s **Memory limit:** 64M

Ms. Evans's database stores a number of words consisting of the first A $(2 \leq A \leq 26)$ English letters. To prevent technicians from seeing sensitive information, the words are encrypted in a very simple way: each English letter is mapped to exactly one English letter, such that no two letters map to the same letter. A letter can map to itself. To encrypt a word, each letter of the word is replaced with the letter it maps to.

For example, if $A = 3$, the following mappings are valid:

- $\{A \to C, B \to A, C \to B\}$
- $\{A \to A, B \to B, C \to C\}$
- $\{A \to C, B \to B, C \to A\}$

The following mappings are not valid:

- $\{A \to B, B \to A, C \to A\}$
- $\{A \to A, B \to D, C \to C\}$

One of the hard drives failed yesterday, and some information about the mapping has been lost. Specifically, for the i^{th} letter, it is known that it mapped to either a_i or b_i (a_i and b_i are among the first A English letters; $a_i \neq b_i$).

Ms. Evans has a list of N $(1 \leq N \leq 100)$ questions. Question i asks: given what we know about the mapping, is it possible that X_i could map to Y_i? X_i and Y_i are strings of equal length composed of the first A lowercase English characters. No string will exceed 100 characters in length.

It is guaranteed that the input corresponds to at least one valid mapping.

Input Specification

The first line contains A. The i^{th} of the next A lines contains a_i and b_i. The next line contains N. The i^{th} of the next N lines contains X_i and Y_i.

Output Specification

For each question, output a single line containing the answer: either `YES` or `NO`.

Sample Input 1

```
2
a b
a b
4
aa bb
aa ab
ba aa
ab ba
```

Sample Output 1

```
YES
NO
NO
YES
```

Sample Input 2

```
4
b d
a c
a b
c b
3
a b
b b
abcd dabc
```

Sample Output 2

```
NO
NO
YES
```