

Irritating accountants

Problem ID: irritatingaccountants

You are shopping on behalf of a company for a big upcoming event and the pesky accountants ask you to sort the items you buy according to their own rigid standards. Why you ask? Nobody knows except for the accountants.

Input

The first line of input contains two space-separated integers $1 \leq n \leq 10^5$ and $1 \leq k \leq 10^5$, indicating how many items you have bought and how many categories the accountants operate with respectively. On the second line follows n space-separated strings t_1, t_2, \dots, t_n , the names of the items you have bought. Some items may have been bought multiple times. On the third line follows c space-separated distinct strings c_1, c_2, \dots, c_k , the names of the categories in the order that the accountants require your items to be sorted.

Next follows k lines, one describing each category. The i^{th} such line begins with a string s_i , the name of the category it describes. It is followed by a positive integer m_i and then m_i space-separated distinct strings $t_1^i, t_2^i, \dots, t_{m_i}^i$, the items that belong to category s_i .

All strings in the input consists of between 1 and 10 characters from the English alphabet ([A-Za-z]). It is guaranteed that each item you bought belongs to exactly one category, and that c_1, c_2, \dots, c_k is a permutation of m_1, m_2, \dots, m_k . It also holds that $\sum_{i=1}^k m_i \leq 10^5$.

Output

On a single line, output n strings representing the items you bought in sorted order according to the accountants. If there are multiple ways of sorting the items according to the requirements, output any of them.



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Sample Input 1

```
6 3
Bucket Milk Milk Cheese Rose Drill
Groceries Flowers Hardware
Hardware 3 Bucket Drill Nail
Groceries 2 Milk Cheese
Flowers 2 Rose Tulip
```

Sample Output 1

```
Milk Milk Cheese Rose Drill Bucket
```