Find Strings

by HackerRank

You are given *n* strings w_1, w_2, ..., w_n. Let S_i denote the set of strings formed by considering all unique substrings of the string w_i. A substring is defined as a contiguous sequence of one or more characters in the string. More information on substrings can be found here. Let *S* = {S_1 U S_2 U .... S_n} .i.e *S* is a set of strings formed by considering all the unique strings in all sets S_1, S_2, ... S_n. You will be given many queries, and for each query, you will be given an integer 'k'. Your task is to display the lexicographically k^{th} smallest string from the set *S*.

Input Format

The first line of input contains a single integer *n*, denoting the number of strings. Each of the next *n* lines consists of a string. The string on the i^{th} line (1<=*i*<=*n*) is denoted by w_i and has a length m_i. The next line consists of a single integer *q*, denoting the number of queries. Each of the next *q* lines consists of a single integer *k*.

Note: The input strings consist only of lowercase english alphabets 'a' - 'z'.

Constraints

1<= *n* <=50
1<= m_i <=2000
1<= *q* <=500
1<= *k* <=1000000000

Output Format

Output *q* lines, where the i^{th} line consists of a string which is the answer to the i^{th} query. If the input is invalid (i.e., *k* > size of *S*), display "INVALID" for that case.

Sample Input

```
2
aab
aac
3
3
8
23
```

Sample Output

```
aab
c
INVALID
```

Explanation

For the sample test case, we have 2 strings "aab" and "aac".
S1 = {"a", "aa", "aab", "ab", "b"} . These are the 5 unique substrings of "aab".
S2 = {"a", "aa", "aac", "ac", "c" } . These are the 5 unique substrings of "aac".
Now, *S* = {S1 U S2} = {"a", "aa", "aab", "aac", "ab", "ac", "b", "c"}. Totally, 8 unique strings are present in the set *S*.

The lexicographically 3rd smallest string in *S* is "aab" and the lexicographically 8th smallest string in *S* is "c". Since there are only 8 distinct substrings, the answer to the last query is "INVALID".

Submissions:4164

Max Score:100
Difficulty: Expert

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```
1 ▸ ↔static void findStrings(String[] a, int[] querry) {
10
11
12      }
13 ▸ ↔
```

Line: 1 Col: 1

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