2 Stamps

You have a set of K stamps/seals. Each stamp i has a word T_i that gets "printed" when you stamp it. You cannot change the word that gets printed, but you can erase some of the characters from it using a whitener.

You wish to print a word S onto a sheet of paper. Find the minimum number of stampings required so that you are able to generate the word S from the stamps at your disposal. Remember that you are allowed to erase as many characters as you wish. You ignore the spaces generated by erasing letters when reading off the final word. If it is impossible to get the word S from your stamps, output `-1`.

Input format

- The first line consists of a single integer K, the number of stamps you have.
- The next line consists of an integer N and the word S that you wish to generate, consisting of N lowercase characters.
- The next K lines are formatted similarly: each line contains an integer M_i and a word T_i corresponding to stamp i, consisting of M_i lowercase characters.

Output format

The minimum number of stampings required, or `-1` if it is impossible.

Test Data

- Subtask 1 (10 marks) : $K = 1$, $N \leq 2000$, $M_1 \leq 1000$
- Subtask 2 (10 marks) : $K \leq 10$, $N \leq 2000$, $\sum_i M_i \leq 2000$
- Subtask 3 (40 marks) : $K = 1$, $N \leq 100000$, $M_1 \leq 10000$
- Subtask 4 (40 marks) : $K \leq 10$, $N \leq 100000$, $M_i \leq 10000$

Sample Input

```
3
15 indianteamtoioi
5 india
8 topcoder
11 mathematics
```

Sample output

```
8
```

Explanation

india|india|topcoder|mathematics|topcoder|india|topcoder|india

Red letters are the ones erased.

Limits

- *Time limit:* 1 s
- *Memory limit:* 128 MB