Problem G
Personality Test
Time limit: 3 seconds

There are n students taking a personality test consisting of m questions. The students are numbered from 1 to n and the questions are numbered from 1 to m. For each question, each student can either answer it with a single uppercase Latin character (`A`–`Z`) or not answer it. Let S_i be a string of m characters representing the answers of student i, where the j-th character of S_i is an uppercase Latin character if they answered question j, or a period (`.`) if they did not.

Two students are considered *similar* if there is a set of at least k questions where both students answered all questions in the set, and for each question in the set, they answered it with the same answer.

For example, let $n = 3$, $m = 3$, $k = 2$, $S_1 =$ `BBC`, $S_2 =$ `..C`, and $S_3 =$ `.BC`. In this example, students 1 and 3 are similar since they answered questions 2 and 3 with the same answer, while students 2 and 3 are not similar since they answered only question 3 with the same answer.

You want to find a pair of integers (a, b) such that $a < b$ and students a and b are similar, or determine if there is no such pair. If there is more than one pair, find the one with the **smallest** b. If there is still more than one pair, find the one with the **largest** a.

Input

The first line of input contains three integers n, m, and k ($2 \le n \le 5000; 1 \le m \le 3000; 1 \le k \le 5$). Each of the next n lines contains a string of m characters. The i-th line contains the string S_i.

Output

Output one line containing the integers a and b representing the pair of similar students as mentioned in the problem statement, or just the integer `-1` if there is no such pair.

Sample Input #1	Sample Output #1
3 3 2 BBC ..C .BC	1 3

Explanation for the sample input/output #1

This is the example in the problem statement.

Sample Input #2	Sample Output #2
3 3 1 BBC ..C .BC	1 2

Explanation for the sample input/output #2

Students 1 and 2 are similar.

Sample Input #3	Sample Output #3
3 3 3 BBC ..C .BC	-1

Explanation for the sample input/output #3

There is no pair of similar students.

Sample Input #4	Sample Output #4
4 12 2 GOOD.LUCK.IN WINNING.ICPC ASIA.PACIFIC CHAMPIONSHIP	2 3