



Un-Mistakable

Problem Code: **MSTC01**

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You are given a list of **N** words consisting of lower case letters of the English alphabet. Find the longest word that contains **less than or equal to K** distinct letters.

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Input

The first line contains two integers **N** and **K**.

Each of the next **N** lines contains one of the words.

Output

Print the length of the longest word containing **less than or equal to K** distinct letters, or **-1** if there is no solution.

Constraints

- $1 \leq N \leq 100$
- $1 \leq K \leq 26$
- Any word consists of at most **100** characters.

Example

Input:

```
3 2
abba
abccbaabc
baaab
```

Output:

```
5
```

Input:

```
5 5
kayak
analysis
home
queue
dequeue
```

Output:

```
7
```

Input:

4 3
house
brick
fence
window

Output:

-1

Explanation

Example case 1. **baaab** is the longest word which contains at most 2 distinct characters

Example case 2. **dequeue** is the longest word which contains 4 distinct characters which is less than 5.

Example case 3. All the words have at least 4 distinct characters.

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Time Limit: 1 secs

Source Limit: 50000 Bytes

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