Consonant words' scale X47203_en

Definition 1: A pair of words written in capital letters (p_1, p_2) is said to form a *consonant scale* if the number of occurrences of consonants in p_2 is greater than the number of occurrences of consonants in p_1.

For example, the pair (MADUIXOT, PRESSEC) form a consonant scale, since MADUIXOT has 4 consonants and PRESSEC has 5. So does the pair (POMA, PLATAN). However, neither (SINDRIA, PRUNA) nor (PERA, KIWI) do form a consonant scale.

Definition 2: A *consonant words' scale* of length k is a sequence of k words (written in capital letters), where every pair of consecutive words of the sequence form a consonant scale.

For example: POMA, MADUIXA, PLATAN, PRESSEC, ALBERCOCS is a consonant words' scale of words with length 5.

Definition 3: Given a matrix with n rows and m columns, we say that a sequence of k positions of the matrix is *scaled* if it follows the following form $\{(i,j), (i+1, j+1), ..., (i+k-1, j+k-1)\}$, for i, j, k holding that $0 \leq i, i+k-1 < n$, $0 \leq j, j+k-1 < m$.

For example, given a matrix of size 6×10, the sequence $\{(0,2), (1,3), (2,4), (3,5), (4,6)\}$ is a scaled sequence of positions of length 5, that starts at position $(0,2)$

To do:

Do a program that, given a word matrix and a natural k, traverses the matrix in a row-wise way and computes the first position (i,j) starting a consonant words' scale of length k in a scaled sequence of positions starting at (i,j).

Your program must represent the word matrix by means of the following type:

```
struct Word {
    string contents;        // the word
    int consonants;         // number of occurrences of consonants
};

typedef vector< vector<Word> > WordsMat;
```

Input

The input is composed by a single case. The case consists of the number of rows $n \geq 1$, the number of columns $m \geq 1$ of the matrix, and a natural number k determining the length of the sequence to be found. Following, we find n lines with m strings each. Each string is formed only by capital letters.

Output

You must write in a single line: the row number and the column number of the matrix, together with the word in it, where the first (according to a row-wise traversal) consonant words' scale of length k starts when considering a scaled sequence of positions. You must write -1 -1 when the matrix does not have any.

Follow the format as specified on the examples. Follow a good programming style. You may consider (but it is up to you) to include comments within your code.

Sample input 1

```
4 6 2
SA SO TO ON NI VI
VI SA SO TO ON NI
NI VI SA SO XX ON
YY ZZ XX YY ZZ XX
```

Sample output 1

```
1 3 TO
```

Sample input 2

```
1 6 1
SA SO TO ON NI VI
```

Sample output 2

```
0 0 SA
```

Sample input 3

```
2 6 2
SA SO TO ON NI VI
VI SA SO TO ON NI
```

Sample output 3

```
-1 -1
```

Sample input 4

```
3 6 4
SA SO TO ON NI VI
SA SO TO ON NI VI
SA SO TO ON NI VI
```

Sample output 4

```
-1 -1
```

Problem information

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