



JUNIOR CROATIAN OLYMPIAD IN INFORMATICS 2012
FIRST EXAM
Krk, 25th June 2012
Task overview

| TASK | BOMBONI | ČOKOLADA |
|---------------------|-----------------|-----------------|
| input data | standard input | |
| output data | standard output | |
| time limit | 1 sec | 1 sec |
| memory limit | 32 MB | 32 MB |
| points | 100 | 100 |
| | 200 | |



Little Ivan is bored at math class so he decided to play popular game called "Bomboni". At the beginning all fields of $N \times N$ square board contain candies (not necessarily of same color). When its his turn player should swap **two neighbouring** (up, down, left or right) candies of **different color** and then pick **some sequence** (in row or column) **of same color** candies which he will take and eat.

Initial board configuration is given, help Ivan and write a program which will calculate **maximal number of candies he can win in the first move**.

INPUT DATA

In the first line of standard input there is one integer N ($3 \leq N \leq 50$), board dimensions.

In next N lines initial board configuration is given, j -th character in i -th row denotes color of candy at square (i, j) : **C** (red), **P** (blue), **Z** (green), **Y** (yellow). It will always be possible to make first move.

OUTPUT DATA

In the first and only line of standard output print the maximal number of candies Ivan can win in the first move.

TEST EXAMPLES

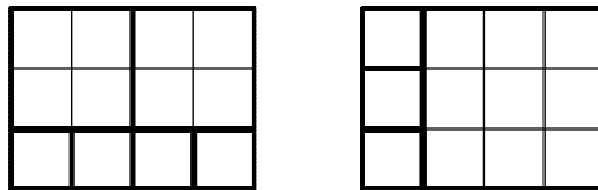
| | | |
|--|---|--|
| input 3 CCP CCP PPC output 3 | input 4 PPPP CYZY CCPY PPCC output 4 | input 5 YCPZY CYZZP CCPPP YCYZC CPPZZ output 4 |
|--|---|--|

Second test example explanation: in first row we see sequence PPPP, so swapping any two candies in other rows first row remain unchanged so Ivan can take it.

Third test example explanation: swapping candies Y and C in 4th row Ivan gets sequence CCCC in first column.



Marin's mother bought Marin a chocolate bar with N rows and M columns. Marin knows he cannot be selfish, so he decided to split the chocolate with his friends. He will split the chocolate in such a way that he **makes cuts between rows and columns** of remaining bars (starting with just one bar). In the end, all the remaining bars must be square shaped, i.e. have the same number of rows and columns. He wants to share the chocolate with only his best friends so he will split it in such a way that there is a **minimal number of remaining square shaped bars left**. Of course, no chocolate can be wasted.



In the pictures above, N is 3 and M is 4. First split ends up with 6 square bars and the second one with 4, which also makes the optimal cut.

Help Marin split his chocolate bar into smallest number of square shaped bars.

INPUT DATA

In the first and only line read integers N and M ($1 \leq N, M \leq 1000$), the number of rows and columns of the chocolate bar.

OUTPUT DATA

In the first and only line output a single integer - the minimal number of remaining square shaped bars.

TEST EXAMPLES

| | | |
|---------------|---------------|---------------|
| input | input | input |
| 3 4 | 4 4 | 2 5 |
| output | output | output |
| 4 | 1 | 4 |