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# Grid Challenge



by gdisastery

Problem

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Given a squared sized grid  $G$  of size  $N$  in which each cell has a lowercase letter. Denote the character in the  $i$ th row and in the  $j$ th column as  $G[i][j]$ .

You can perform one operation as many times as you like: Swap two column adjacent characters in the same row  $G[i][j]$  and  $G[i][j+1]$  for all valid  $i, j$ .

Is it possible to rearrange the grid such that the following condition is true?

$G[i][1] \leq G[i][2] \leq \dots \leq G[i][N]$  for  $1 \leq i \leq N$  and  
 $G[1][j] \leq G[2][j] \leq \dots \leq G[N][j]$  for  $1 \leq j \leq N$

In other words, is it possible to rearrange the grid such that every row and every column is lexicographically sorted?

**Note:**  $c_1 \leq c_2$ , if letter  $c_1$  is equal to  $c_2$  or is before  $c_2$  in the alphabet.

## Input Format

The first line begins with  $T$ , the number of testcases. In each testcase you will be given  $N$ . The following  $N$  lines contain  $N$  lowercase english alphabet each, describing the grid.

## Constraints

$1 \leq T \leq 100$

$1 \leq N \leq 100$

$G_{ij}$  will be a lower case letter

## Output Format

Print  $T$  lines. On the  $i$ th line print YES if it is possible to rearrange the grid in the  $i$ th testcase or NO otherwise.

## Sample Input

```
1
5
ebacd
fghij
olmkn
trpqs
xywuv
```

## Sample Output

```
YES
```

## Explanation

The grid in the first and only testcase can be reordered to

```
abcde
fghij
klmno
pqrst
uvwxy
```

This fulfills the condition since the rows 1, 2, ..., 5 and the columns 1, 2, ..., 5 are all lexicographically sorted.

Submissions: 12582

Max Score: 20

Difficulty: Easy

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Current Buffer (saved locally, editable)

C#



```

1  using System;
2  using System.Collections.Generic;
3  using System.IO;
4  class Solution {
5
6
7      static void Main(string[] args)
8      {
9
10         int t = int.Parse(Console.ReadLine());
11
12
13         while (t-- > 0)
14         {
15
16             int n = int.Parse(Console.ReadLine());
17
18             //string[] input = { "ebacd",
19             //                  "fghij",
20             //                  "olmkn",
21             //                  "trpqs",
22             //                  "xywuv" };
23
24             // string[] input = { "kc", "iu" };
25             //string[] input = { "uxf",
26             //                  //
27             //                  "vof",
28             //                  "hmp" };
29
30             string[] input = new string[n];
31             for (int i = 0; i < n; i++)
32             {
33                 input[i] = Console.ReadLine();
34             }
35
36             string[] ordenado = new string[input.Length];
37
38             for (int i = 0; i < input.Length; i++)
39             {
40                 char[] linea = input[i].ToCharArray();
41                 Array.Sort(linea);
42                 //Console.WriteLine(new string(linea));
43                 ordenado[i] = new string(linea);
44             }
45
46             //foreach (string s in ordenado)
47             //{
48             //    Console.WriteLine(s);
49             //}
50
51             string ans = "YES";
52
53             for (int col = 0; col < ordenado[0].Length; col++)
54             {
55                 for (int fila = 0; fila + 1 < ordenado.Length; fila++)
56                 {
57                     if (ordenado[fila][col] > ordenado[fila + 1][col])
58                     {
59                         ans = "NO";
60                         break;
61                     }
62                 }
63             }
64
65             Console.WriteLine(ans);
66
67

```



```
68  
69 // console.ReadLine();  
70 }  
71  
72  
73  
74 }
```

Line: 69 Col: 13

 [Upload Code as File](#)☐ Test against custom input

Run Code

Submit Code

### Congrats, you solved this challenge!

✓ Test Case #0

✓ Test Case #3

✓ Test Case #6

✓ Test Case #9

✓ Test Case #1

✓ Test Case #4

✓ Test Case #7

✓ Test Case #10

✓ Test Case #2

✓ Test Case #5

✓ Test Case #8

✓ Test Case #11

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