🚀 Codeforces Blitz Cup 2025 Final Rounds Have Started! Join the stream now: https://youtu.be/caoeMuNNQtg. ✕
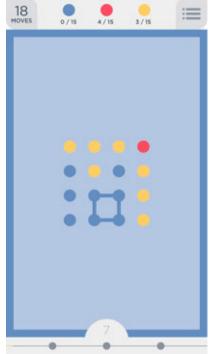
PROBLEMS   **SUBMIT**   **STATUS**   **STANDINGS**   **CUSTOM TEST**

B. Fox And Two Dots

time limit per test: 2 seconds
memory limit per test: 256 megabytes

Fox Ciel is playing a mobile puzzle game called "Two Dots". The basic levels are played on a board of size $n \times m$ cells, like this:

Each cell contains a dot that has some color. We will use different uppercase Latin characters to express different colors.

The key of this game is to find a cycle that contain dots of same color. Consider 4 blue dots on the picture forming a circle as an example. Formally, we call a sequence of dots $d_1, d_2, ..., d_k$ a cycle if and only if it meets the following condition:

1. These k dots are different: if $i \ne j$ then d_i is different from d_j.
2. k is at least 4.
3. All dots belong to the same color.
4. For all $1 \le i \le k$ - 1: d_i and d_{i+1} are adjacent. Also, d_k and d_1 should also be adjacent. Cells x and y are called adjacent if they share an edge.

Determine if there exists a cycle on the field.

Input

The first line contains two integers n and m ($2 \le n, m \le 50$): the number of rows and columns of the board.

Then n lines follow, each line contains a string consisting of m characters, expressing colors of dots in each line. Each character is an uppercase Latin letter.

Output

Output "`Yes`" if there exists a cycle, and "`No`" otherwise.

Examples

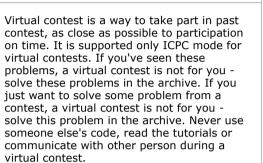| input	Copy
3 4 AAAA ABCA AAAA	

output	Copy
Yes	

input	Copy
3 4 AAAA ABCA AADA	

output	Copy
No	

Codeforces Round 290 (Div. 2)

Finished

Practice

⭐

→ Virtual participation ⌄

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

[Start virtual contest]

→ Clone Contest to Mashup ⌄

You can clone this contest to a mashup.

[Clone Contest]

→ Submit?

Language: [GNU G++20 13.2 (64 bit, win ⌄]
Choose file: [Choose File] No file chosen

[Submit]

→ Last submissions

Submission	Time	Verdict
268396014	Jul/02/2024 04:48	Accepted
268395941	Jul/02/2024 04:47	Accepted

→ Problem tags

[dfs and similar] [*1500]

No tag edit access

→ Contest materials

- Codeforces Round #290 ✕
- Tutorial (en) ✕

input   Copy

```
4 4
YYYR
BYBY
BBBY
BBBY
```

output   Copy

```
Yes
```

input   Copy

```
7 6
AAAAAB
ABBBAB
ABAAAB
ABABBB
ABAAAB
ABBBAB
AAAAAB
```

output   Copy

```
Yes
```

input   Copy

```
2 13
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
```

output   Copy

```
No
```

Note

In first sample test all 'A' form a cycle.

In second sample there is no such cycle.

The third sample is displayed on the picture above ('Y' = Yellow, 'B' = Blue, 'R' = Red).