# 5482. Detect Cycles in 2D Grid

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| | |
|---|---|
| **User Accepted:** | 421 |
| **User Tried:** | 646 |
| **Total Accepted:** | 431 |
| **Total Submissions:** | 915 |
| **Difficulty:** | Hard |

Given a 2D array of characters `grid` of size `m x n`, you need to find if there exists any cycle consisting of the **same value** in `grid`.

A cycle is a path of **length 4 or more** in the grid that starts and ends at the same cell. From a given cell, you can move to one of the cells adjacent to it - in one of the four directions (up, down, left, or right), if it has the **same value** of the current cell.

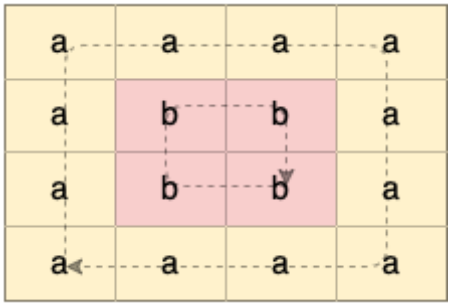
Also, you cannot move to the cell that you visited in your last move. For example, the cycle `(1, 1) -> (1, 2) -> (1, 1)` is invalid because from `(1, 2)` we visited `(1, 1)` which was the last visited cell.

Return `true` if any cycle of the same value exists in `grid`, otherwise, return `false`.

**Example 1:**

| | | | |
|---|---|---|---|
| a | a | a | a |
| a | b | b | a |
| a | b | b | a |
| a | a | a | a |

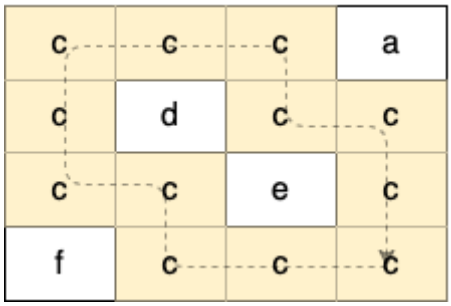
**Input:** grid = [["a","a","a","a"],["a","b","b","a"],["a","b","b","a"],["a","a","a","a"]]
**Output:** true
**Explanation:** There are two valid cycles shown in different colors in the image below:




**Example 2:**

| c | c | c | a |
|---|---|---|---|
| c | d | c | c |
| c | c | e | c |
| f | c | c | c |

**Input:** grid = [["c","c","c","a"],["c","d","c","c"],["c","c","e","c"],["f","c","c","c"]]
**Output:** true
**Explanation:** There is only one valid cycle highlighted in the image below:




**Example 3:**

| a | b | b |
|---|---|---|
| b | z | b |
| b | b | a |

**Input:** grid = [["a","b","b"],["b","z","b"],["b","b","a"]]
**Output:** false

**Constraints:**

- m == grid.length
- n == grid[i].length
- 1 <= m <= 500
- 1 <= n <= 500
- grid consists only of lowercase English letters.

JavaScript

```
/**
 * @param {character[][]} grid
 * @return {boolean}
 */
var containsCycle = function(grid) {
```

```
6
7 };
```

Custom Testcase Use Example Testcases

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