Problem 3546: Equal Sum Grid Partition I

Problem Information

Difficulty: Medium
Acceptance Rate: 0.00%
Paid Only: No

Problem Description

You are given an

m x n

matrix

grid

of positive integers. Your task is to determine if it is possible to make

either one horizontal or one vertical cut

on the grid such that:

Each of the two resulting sections formed by the cut is

non-empty

.

The sum of the elements in both sections is

equal

.

Return

true

if such a partition exists; otherwise return

false

.

Example 1:

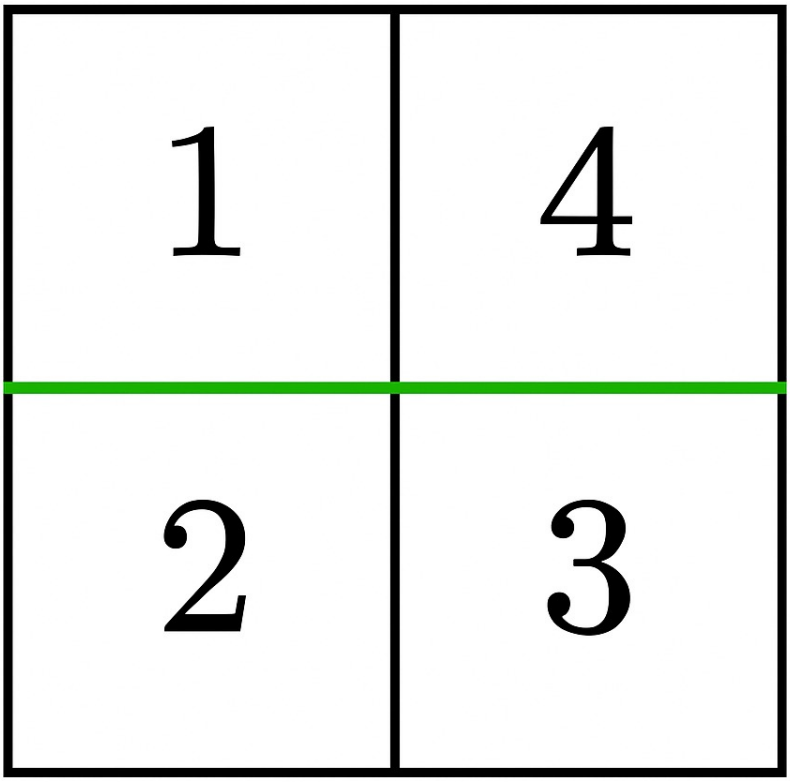
Input:

grid = [[1,4],[2,3]]

Output:

true

Explanation:



A horizontal cut between row 0 and row 1 results in two non-empty sections, each with a sum of 5. Thus, the answer is

true

.

Example 2:

Input:

grid = [[1,3],[2,4]]

Output:

false

Explanation:

No horizontal or vertical cut results in two non-empty sections with equal sums. Thus, the answer is

false

.

Constraints:

1 <= m == grid.length <= 10

5

1 <= n == grid[i].length <= 10

5

2 <= m * n <= 10

5

1 <= grid[i][j] <= 10

5

Code Snippets

C++:

```
class Solution {
public:
bool canPartitionGrid(vector<vector<int>>& grid) {

}
};
```

Java:

```
class Solution {
public boolean canPartitionGrid(int[][] grid) {

}
}
```

Python3:

```
class Solution:
def canPartitionGrid(self, grid: List[List[int]]) -> bool:
```

Python:

```
class Solution(object):
def canPartitionGrid(self, grid):
"""
:type grid: List[List[int]]
:rtype: bool
"""
```

JavaScript:

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

};
```

TypeScript:

```
function canPartitionGrid(grid: number[][]): boolean {

};
```

C#:

```
public class Solution {
public bool CanPartitionGrid(int[][] grid) {

}
}
```

C:

```
bool canPartitionGrid(int** grid, int gridSize, int* gridColSize) {

}
```

Go:

```
func canPartitionGrid(grid [][]int) bool {

}
```

Kotlin:

```
class Solution {
fun canPartitionGrid(grid: Array<IntArray>): Boolean {

}
}
```

Swift:

```
class Solution {
func canPartitionGrid(_ grid: [[Int]]) -> Bool {

}
}
```

Rust:

```
impl Solution {
pub fn can_partition_grid(grid: Vec<Vec<i32>>) -> bool {

}
}
```

Ruby:

```
# @param {Integer[][]} grid
# @return {Boolean}
def can_partition_grid(grid)

end
```

PHP:

```
class Solution {

/**
* @param Integer[][] $grid
* @return Boolean
*/
function canPartitionGrid($grid) {

}
}
```

Dart:

```
class Solution {
bool canPartitionGrid(List<List<int>> grid) {

}
}
```

Scala:

```
object Solution {
def canPartitionGrid(grid: Array[Array[Int]]): Boolean = {

}
}
```

Elixir:

```
defmodule Solution do
@spec can_partition_grid(grid :: [[integer]]) :: boolean
def can_partition_grid(grid) do

end
end
```

Erlang:

```
-spec can_partition_grid(Grid :: [[integer()]]) -> boolean().
can_partition_grid(Grid) ->
.
```

Racket:

```
(define/contract (can-partition-grid grid)
(-> (listof (listof exact-integer?)) boolean?)
)
```

Solutions

C++ Solution:

```
/*
* Problem: Equal Sum Grid Partition I
* Difficulty: Medium
* Tags: array
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/

class Solution {
public:
bool canPartitionGrid(vector<vector<int>>& grid) {

}
};
```

Java Solution:

```
/**
* Problem: Equal Sum Grid Partition I
* Difficulty: Medium
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* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/

class Solution {
public boolean canPartitionGrid(int[][] grid) {
```

```
}
}
```

Python3 Solution:

```
"""
Problem: Equal Sum Grid Partition I
Difficulty: Medium
Tags: array

Approach: Use two pointers or sliding window technique
Time Complexity: O(n) or O(n log n)
Space Complexity: O(1) to O(n) depending on approach
"""

class Solution:
def canPartitionGrid(self, grid: List[List[int]]) -> bool:
# TODO: Implement optimized solution
pass
```

Python Solution:

```
class Solution(object):
def canPartitionGrid(self, grid):
"""
:type grid: List[List[int]]
:rtype: bool
"""
```

JavaScript Solution:

```
/**
* Problem: Equal Sum Grid Partition I
* Difficulty: Medium
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* @param {number[][]} grid
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var canPartitionGrid = function(grid) {

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TypeScript Solution:

```
/**
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* Tags: array
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*/

function canPartitionGrid(grid: number[][]): boolean {

};
```

C# Solution:

```
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* Tags: array
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* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
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*/

public class Solution {
public bool CanPartitionGrid(int[][] grid) {

}
```

```
}
```

C Solution:

```
/*
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* Difficulty: Medium
* Tags: array
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* Approach: Use two pointers or sliding window technique
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*/

bool canPartitionGrid(int** grid, int gridSize, int* gridColSize) {

}
```

Go Solution:

```
// Problem: Equal Sum Grid Partition I
// Difficulty: Medium
// Tags: array
//
// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
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func canPartitionGrid(grid [][]int) bool {

}
```

Kotlin Solution:

```
class Solution {
fun canPartitionGrid(grid: Array<IntArray>): Boolean {

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class Solution {
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impl Solution {
pub fn can_partition_grid(grid: Vec<Vec<i32>>) -> bool {

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Ruby Solution:

```
# @param {Integer[][]} grid
# @return {Boolean}
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end
```

PHP Solution:

```
class Solution {

/**
* @param Integer[][] $grid
* @return Boolean
*/
function canPartitionGrid($grid) {

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```

Dart Solution:

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class Solution {
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