

# Problem 3619: Count Islands With Total Value Divisible by K

## Problem Information

**Difficulty:** Medium

**Acceptance Rate:** 56.31%

**Paid Only:** No

**Tags:** Array, Depth-First Search, Breadth-First Search, Union Find, Matrix

## Problem Description

You are given an `m x n` matrix `grid` and a positive integer `k`. An \*\*island\*\* is a group of \*\*positive\*\* integers (representing land) that are \*\*4-directionally\*\* connected (horizontally or vertically).

The \*\*total value\*\* of an island is the sum of the values of all cells in the island.

Return the number of islands with a total value \*\*divisible by\*\* `k`.

**Example 1:**



**Input:** grid = [[0,2,1,0,0],[0,5,0,0,5],[0,0,1,0,0],[0,1,4,7,0],[0,2,0,0,8]], k = 5

**Output:** 2

**Explanation:**

The grid contains four islands. The islands highlighted in blue have a total value that is divisible by 5, while the islands highlighted in red do not.

**Example 2:**



**\*\*Input:\*\*** grid = [[3,0,3,0], [0,3,0,3], [3,0,3,0]], k = 3

**\*\*Output:\*\*** 6

**\*\*Explanation:\*\***

The grid contains six islands, each with a total value that is divisible by 3.

**\*\*Constraints:\*\***

`* `m == grid.length` * `n == grid[i].length` * `1 <= m, n <= 1000` * `1 <= m * n <= 105` * `0 <= grid[i][j] <= 106` * `1 <= k <= 106``

## Code Snippets

**C++:**

```
class Solution {
public:
    int countIslands(vector<vector<int>>& grid, int k) {
        }
    };
}
```

**Java:**

```
class Solution {
public int countIslands(int[][] grid, int k) {
    }
}
}
```

**Python3:**

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