

# 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  $m \times n$  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:
```