

Problem StatementYou are given a 2D grid representing a map where:

- '1' = land
- '0' = water

An island is a group of '1's that are connected horizontally or vertically (4 directions: up, down, left, right). Cells connected only diagonally do not count as the same island. Your task is to count the total number of islands in the grid. The grid is surrounded by water on all edges.

Constraints

- $1 \leq \text{rows, cols} \leq 200$
- Grid contains only '0' and '1'
- Time limit: 1 second (plenty for DFS)
- Memory limit: 256 MB

Input Format

- First line: two integers R C (number of rows and columns)
- Next R lines: each contains C characters ('0' or '1') without spaces

Output Format

- Single integer: the number of islands

Sample Input 1

4 5

11110

11010

11000

00000

Sample Output 1

1

Sample Input 2

4 5

11000

11000

00100

00011

Sample Input 2

4 5

11000

11000

00100

00011

Sample Output 2

3