200. Number of Islands

Description | Hints | Submissions | Discuss | Solution

Pick One

Given a 2d grid map of `'1'`s (land) and `'0'`s (water), count the number of islands. An island is surrounded by water and is formed by connecting adjacent lands horizontally or vertically. You may assume all four edges of the grid are all surrounded by water.

Example 1:

```
Input:
11110
11010
11000
00000

Output: 1
```

Example 2:

```
Input:
11000
11000
00100
00011

Output: 3
```

```java
/*
 * 这个题目是计算岛屿的数量，遇到一个1，则把周围所有的全部弄为0（这个部分要利用到深度遍历）
 */
public class L200 {
      public int numIslands(char[][] grid) {
          if(grid == null || grid.length == 0 || grid[0].length == 0) {
              return 0;
          }

          int rows = grid.length;
          int cols = grid[0].length;

          int count = 0;

          for(int i = 0; i < rows; i++)
              for(int j = 0; j < cols; j++) {
                  if (grid[i][j] == '1') {
                    count ++;
                    dfsSearch(grid, i, j, rows, cols);
                }
              }
          return count++;
      }


      //每次遇到一个'1'后，开始向四个方向递归搜索，搜到后变为'0'
      //因为相邻的属于一个island，然后开始继续找下一个'1'，这儿就是一个深度遍历算法
      private void dfsSearch(char [][] grid, int i, int j, int rows, int cols) {
          if (i < 0 || i >= rows || j < 0 || j >= cols) {
            return;
        }
          if(grid[i][j] != '1')
              return ;
          grid[i][j] = '0';
          dfsSearch(grid, i+1, j, rows, cols);
          dfsSearch(grid, i-1, j, rows, cols);
          dfsSearch(grid, i, j+1, rows, cols);
          dfsSearch(grid, i, j-1, rows, cols);
      }
}
```