

200. Number of Islands

Given: $m \times n$ binary grid - grid

• 1 = land

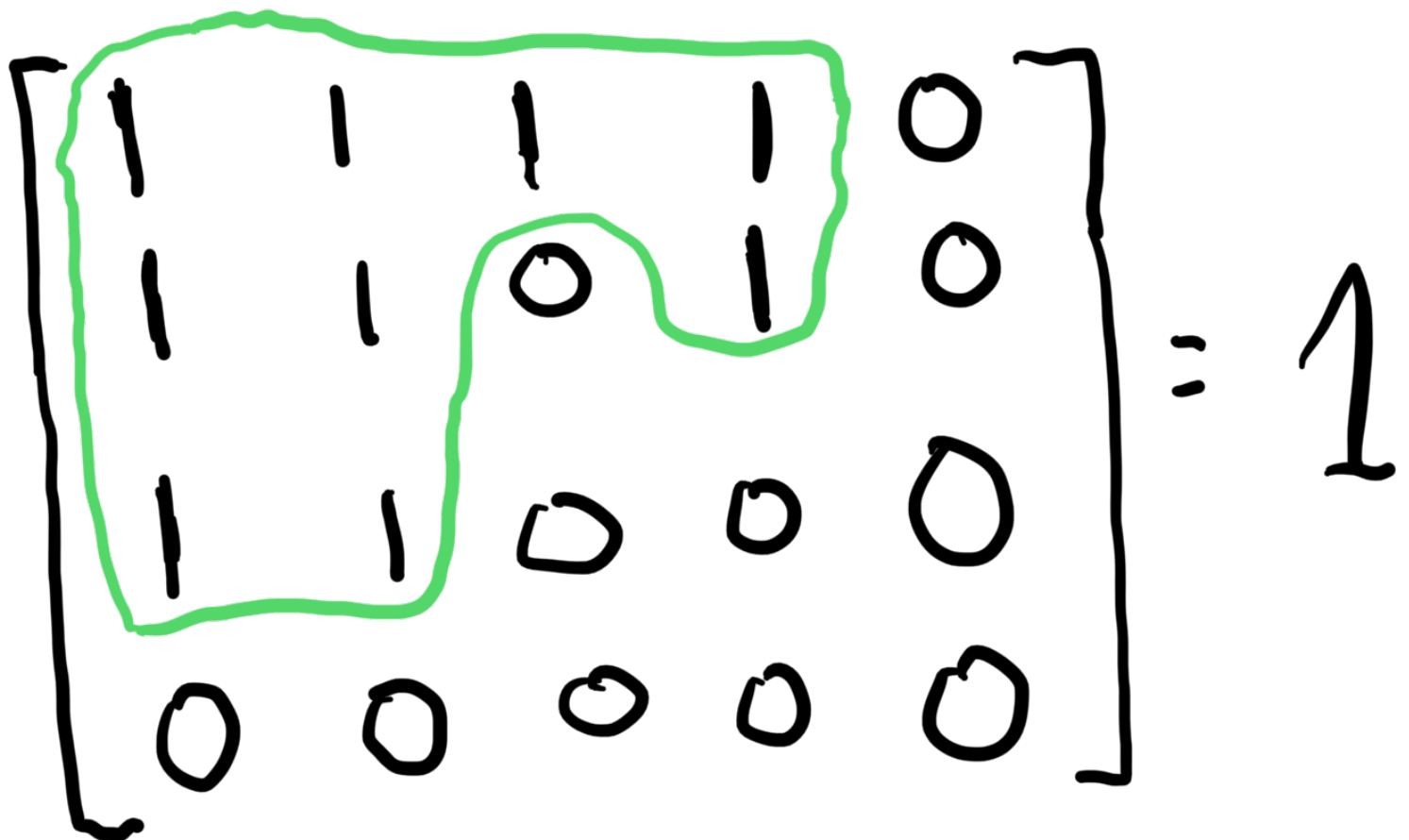
• 0 = water

Return: number of islands

Island: surrounded by water

is formed by connecting adjacent land 4-directionally. Assume

OOB = water.



$$\begin{bmatrix} 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \end{bmatrix} = 3$$

NOTE: islands not connected diagonally

Solution: DFS

- loop for each row, col
- if land and not visited:

Time: $O(M \times N)$ • answer += 1
 Space: $O(M \times N)$ • dfs(row, col)

- dfs

- base case: OOB, visited or water

- else: visit this point,

call dfs on neighbors

- return answer

Note: we do not need to keep track of visited nodes if we replace them with water after visiting