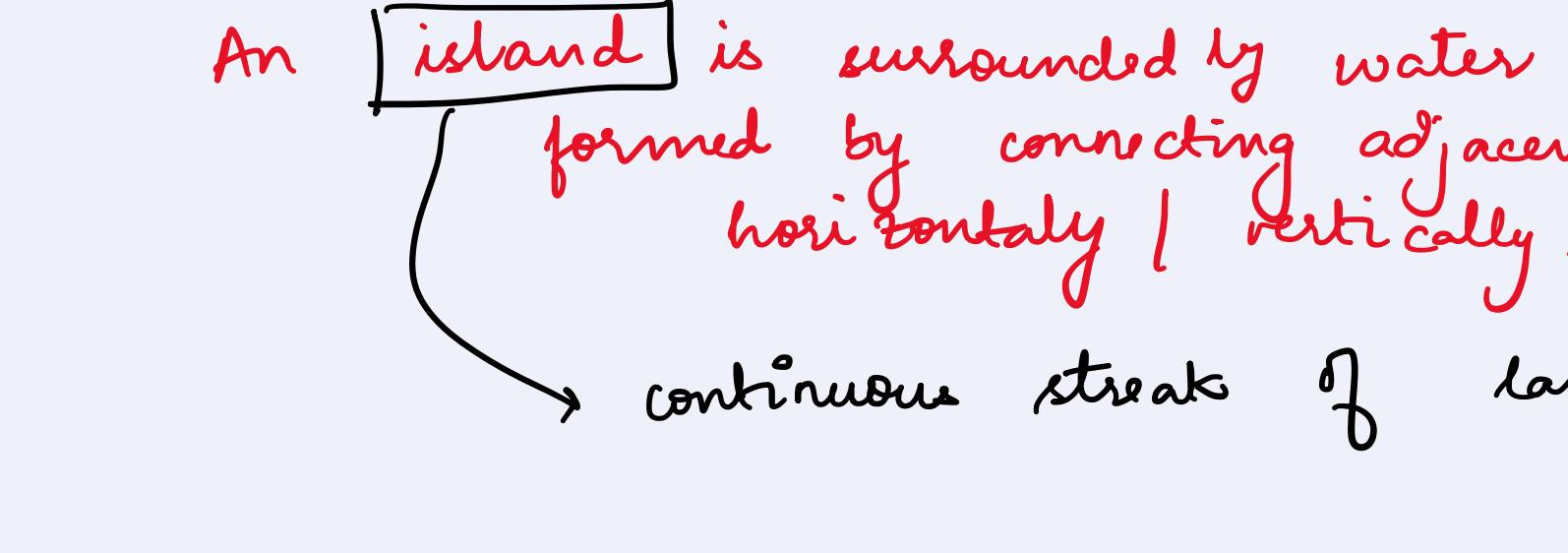


Given a $m \times n$ 2D matrix (grid) binary values



return the no. of islands.

An island is surrounded by water and is formed by connecting adjacent lands horizontally / vertically.

continuous streaks of land.

$$1 \leq m, n \leq 300$$

Eg: ①

Eg: ②

Apply any graph traversal (BFS / DFS).

Total no. of times the traversal is called for iterating the entire graph is no. of islands.

Given a 2-D board, contains 'x' & 'o'.

I/P \rightarrow

If there is any streak of 'o's which is surrounded by 'x' on all sides, then it can be captured and converted into 'x's.

→ Which streak of 'o's can be captured
→ return the output matrix.

Eg:

Given a $m \times n$ matrix

s: source (only 1)
d: destination (only 1)
t: safe
o: unsafe

shortest path from s to d??

BFS \rightarrow level by level

Given a $n \times m$ matrix (boolean)
for every cell $[i, j]$ find the distance of cell (i, j) from nearest 1.

(x_i, y_i) (x_j, y_j)

Manhattan distance

$$|x_i - x_j| + |y_i - y_j|$$

I/P $\begin{bmatrix} 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 \end{bmatrix} \rightarrow \begin{bmatrix} 3 & 2 & 1 & 0 \\ 2 & 1 & 0 & 0 \\ 1 & 0 & 0 & 1 \end{bmatrix}$

only 1 \rightarrow matrix

$\begin{bmatrix} 0 & 1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix} \rightarrow$

multi-source BFS

<img alt="A 3x3 grid