GRAPHS...

Video-68

"let's make it easy too"

Hard

Leetcode -827

If you have tried my "Graph Concepts & Qns" playlist, these Qns, will seem very easy. Do try it once :)

Facebook
Instagram → codestorywithMIK

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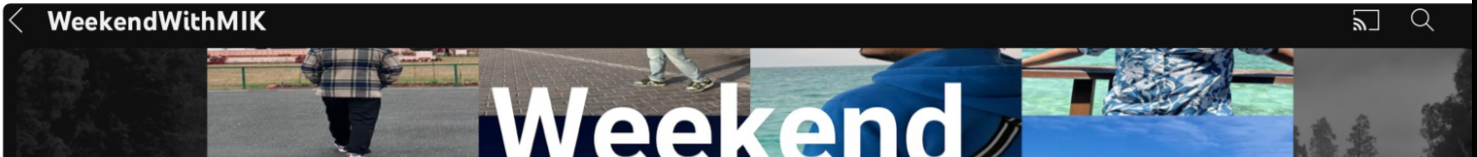
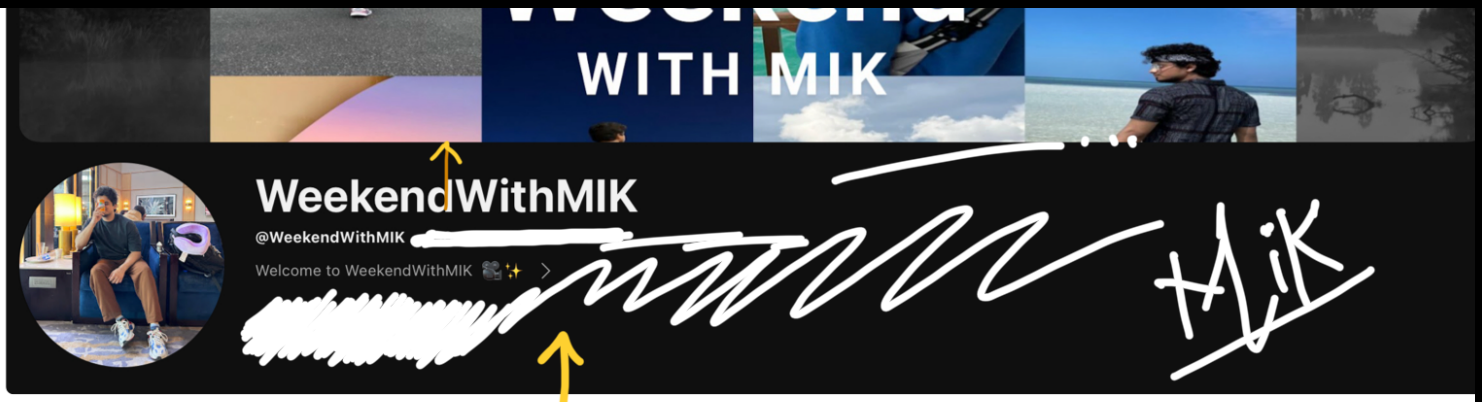
codestorywithMIK →





Try this channel to see "Life behind the Scenes

Motivation :-

"If you want to buy things without checking their price tags, you must work hard without constantly checking the clock."

MIK

827. Making A Large Island

MIK

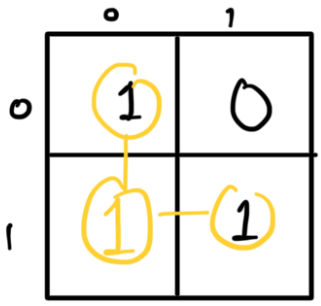
Hard | Topics | Companies

You are given an `n x n` binary matrix `grid`. You are allowed to change **at most one** `0` to be `1`.

Return *the size of the largest* ***island*** *in* `grid` *after applying this operation.*

An **island** is a 4-directionally connected group of `1`s.

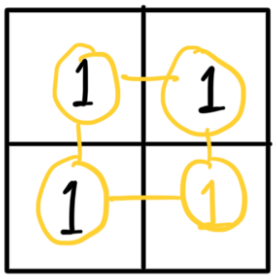
Example :- grid =



3

output :- 3

grid =

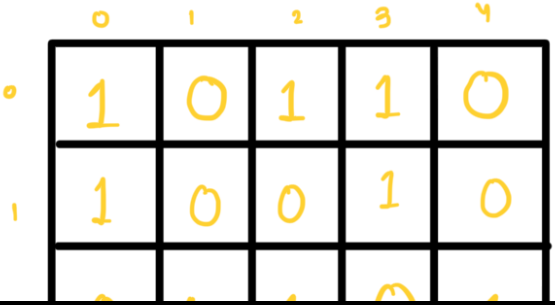


~~3~~ 4

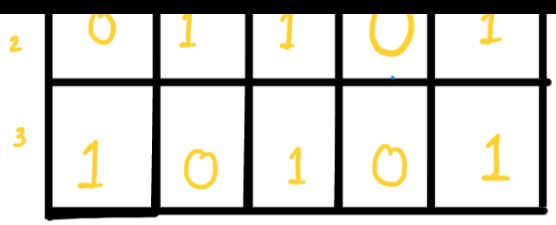
Output :- 4

Thought Process

Brute Force.



cell [0][1] → 6x



[0][4] → ✗

[2][3] → ✓

DFS/BFS

rows = col = n

```
maxArea = 0;
for (i=0; i<n; i++) {          <- n
    for(j=0; j<n; j++) {       <- n
        if (grid[i][j] == 0) {
            // Try converting this to 1
            grid[i][j] = 1
            visite[n][n]; largest = 0;
            for (x=0; x<m; x++) {      <- n
                for(y=0; y<n; y++) {   <- n
                    if(grid[x][y] == 1 &&
                       !visite[x][y] ){
                        largest = max(largest,
                                  DFS(x,y,g)
                    }
                }
            }
            grid[i][j] = 0;
            maxArea = max(maxArea,
                          largest);
        }
    }
}
```

O(n²)

T.C = O(n⁴)

S.C = O(n²)

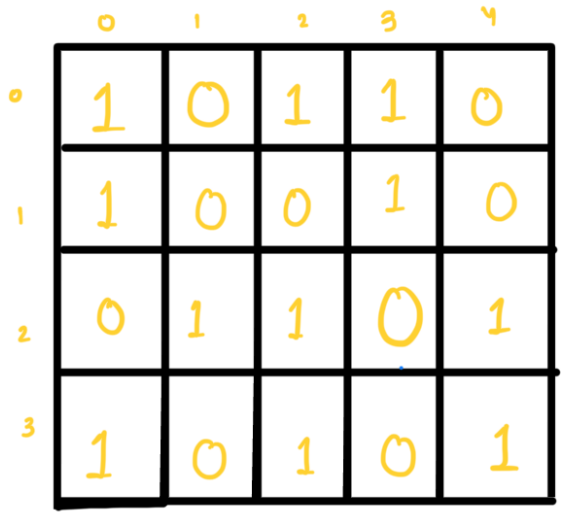
(x,y) → T-

← (x,y) →

↓

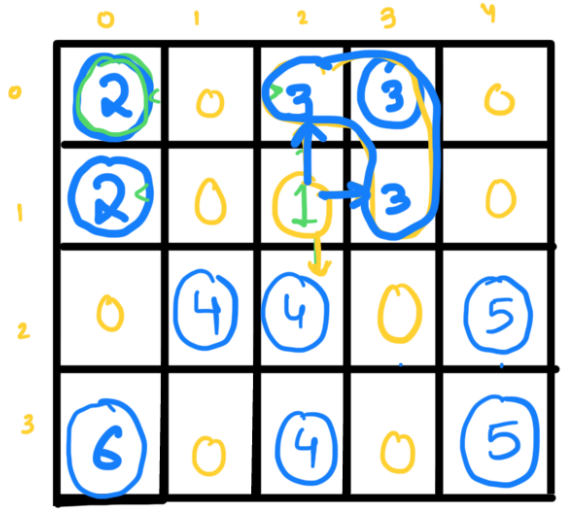
return maxArea;

Better Approach



1. Compute maxArea from existing grid.
2. One by one change 0→1 & hit DFS/BFS from there to check maxArea.
3. return maxArea.

Optimal Approach



Unique-id = ~~2~~ ~~3~~ 4 ~~5~~ 6

Size = DFS (2,4);

map

uniq-id	size
2	2
3	3
4	3
5	2
6	1

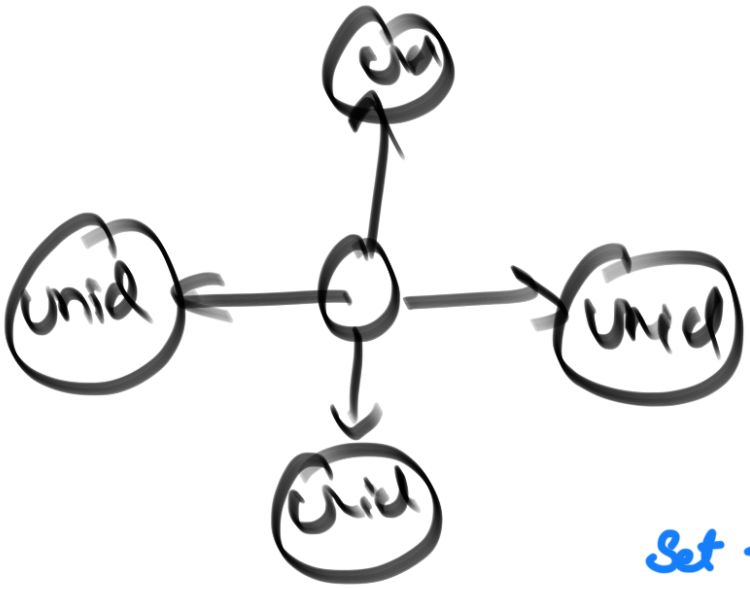
2 + 3 + 1 = 6

3 + 1 = 4

2 + 3 + 1 = 6

3 + 3 + 1 =

" Add one uniq-id once "



Set < u >.