PW SKILLS

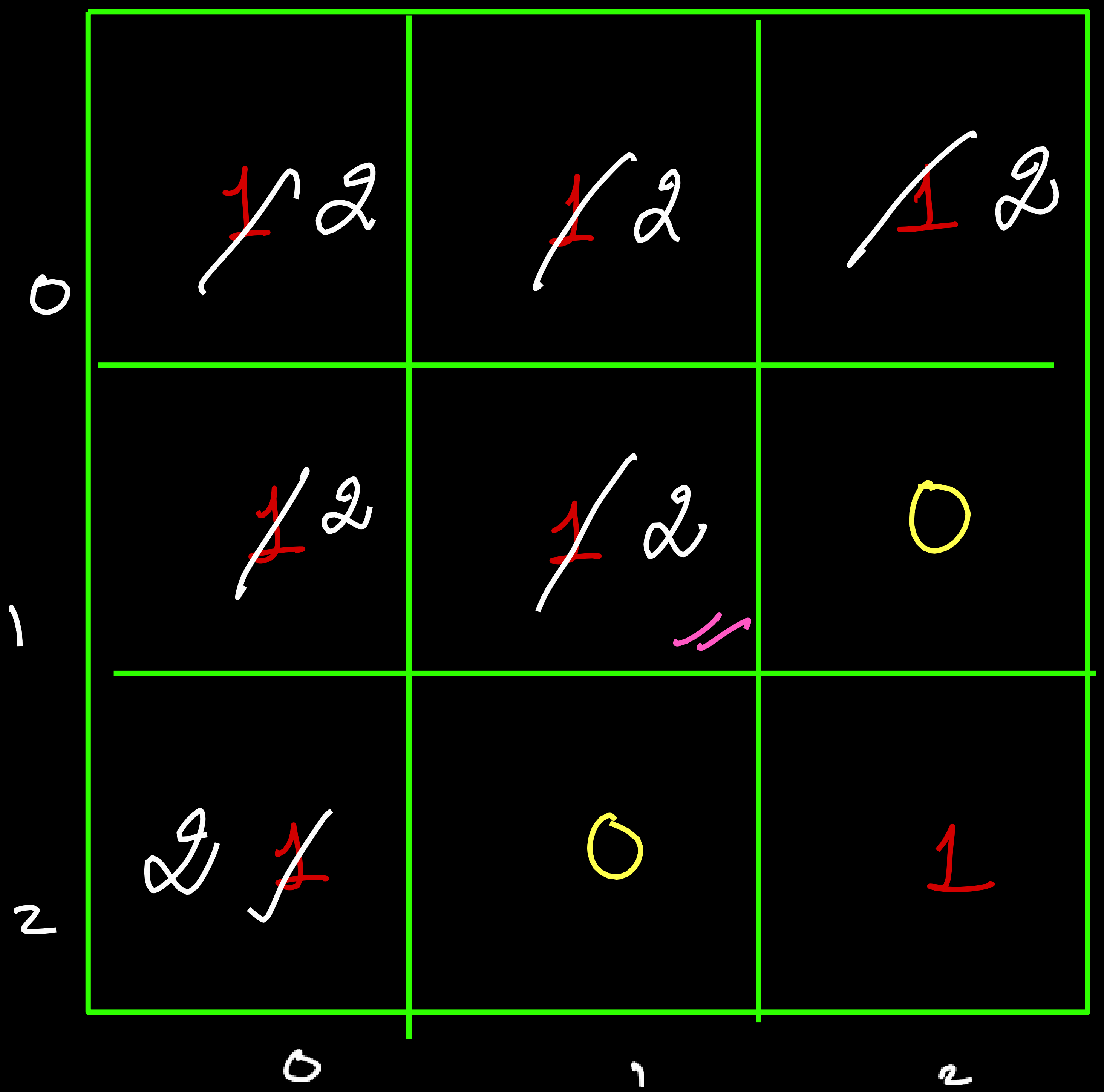
Graphs
Graphs (Part 1)

1 → Red

0 → yellow

2 → white

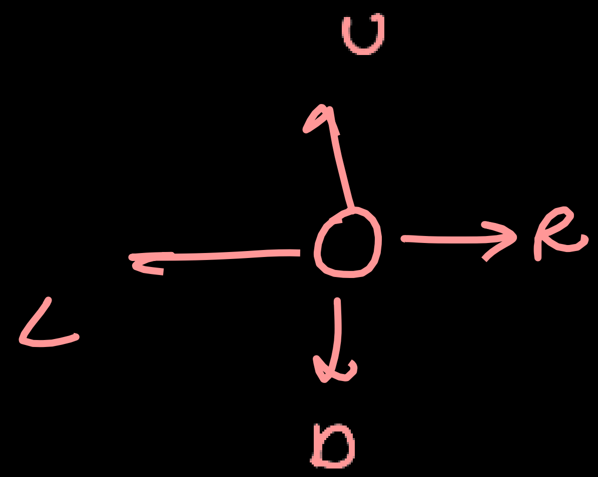
grid based



sr = 1
↳ source row

sc = 1
↳ source col

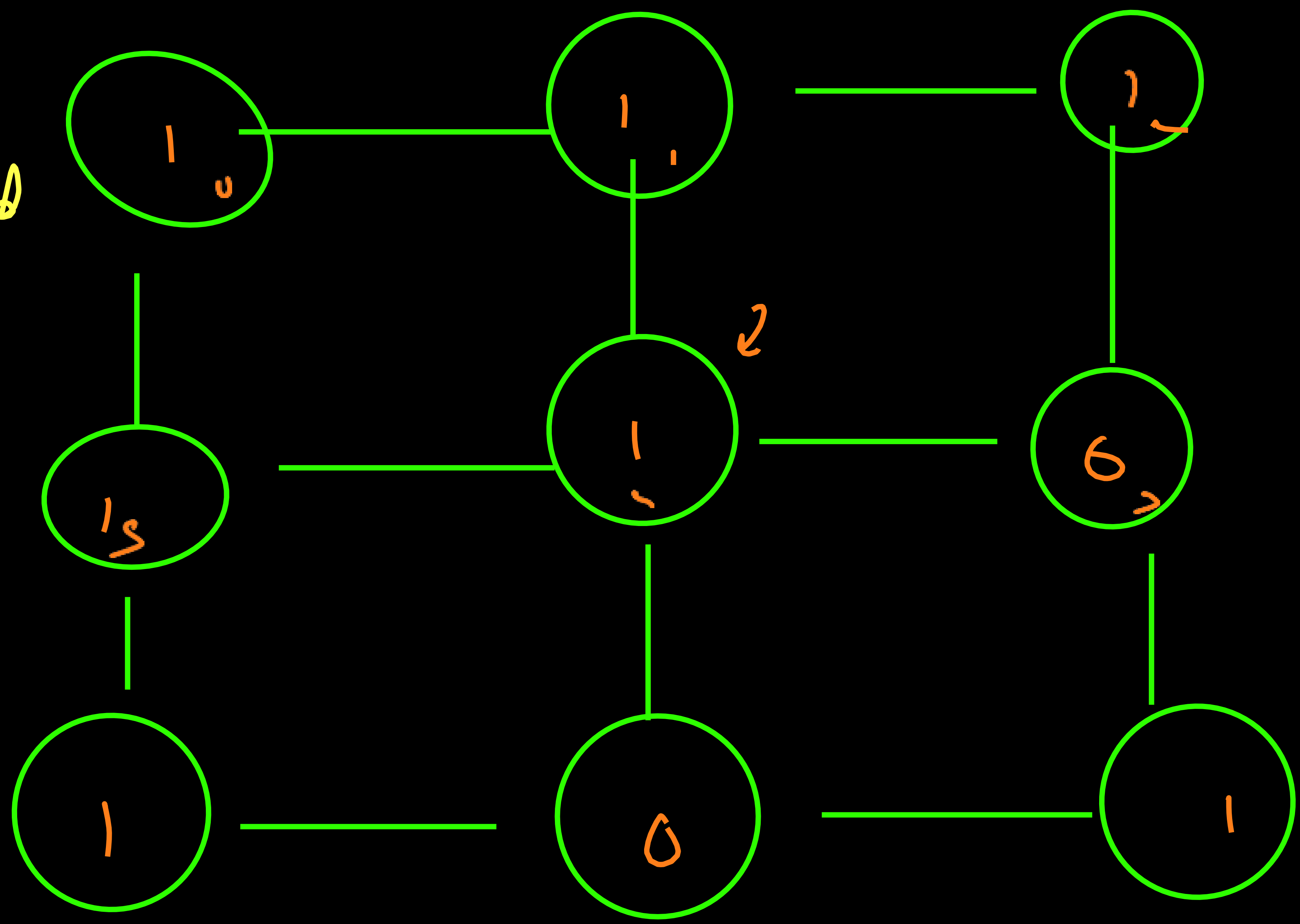
color = 2



Problem is giving an intuition of recursion

↳ DFS ↳ BFS

most of the grid based dfs/bfs can be solved without creating a graph of the grid.

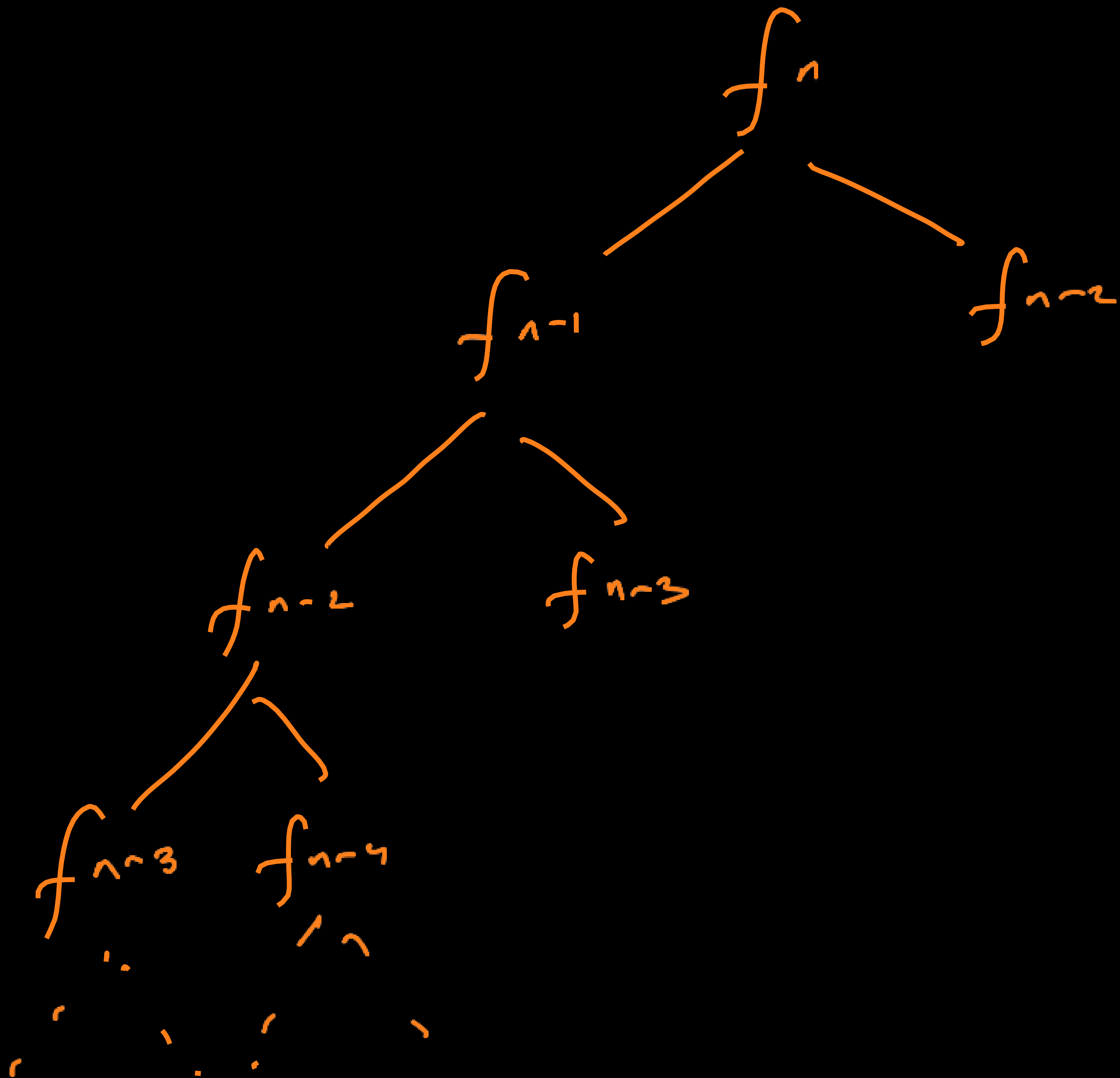


dfs

initial color = 1

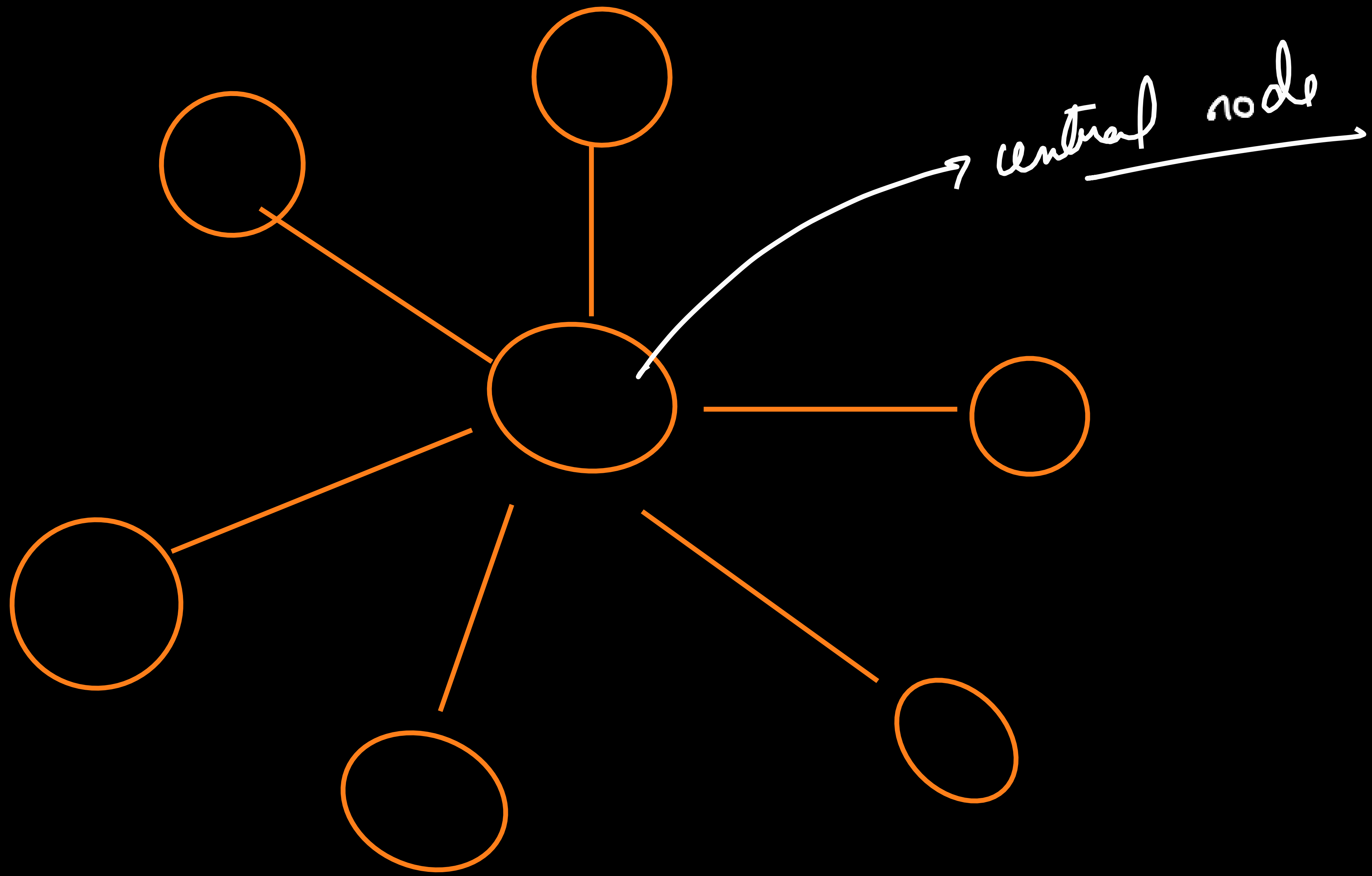
	0	1	2
0	2	2	2
1	2	2	0
2	2	0	1

$$f_n = f_{n-1} + f_{n-2}$$

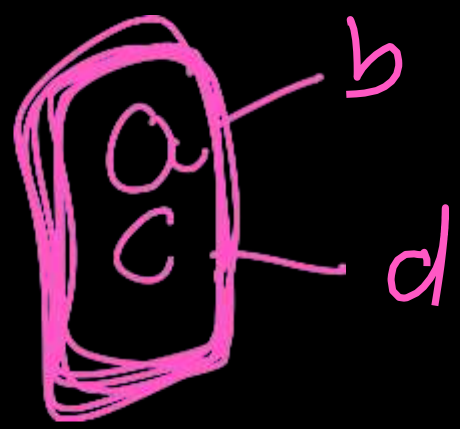


Generally a recursive sol^n is more or less DFS

Leetcode 1791 → Bruteforce → Calculate frequency of vertices in the edge list. $O(V+E)$



↳ pick any 2 edges, my graph is a star graph.



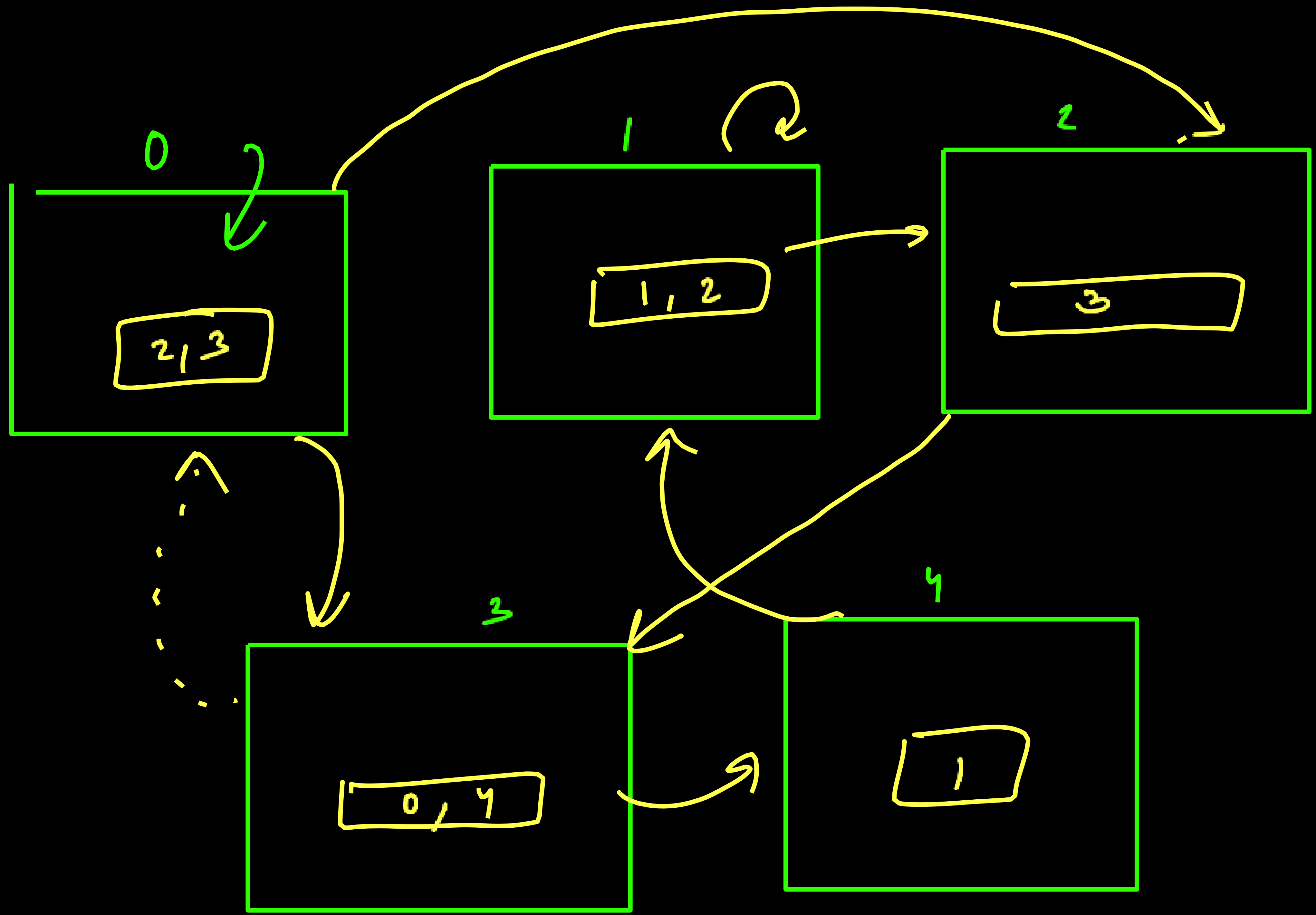
a — b

c — d

3 unig

one of the nodes is central

$$(a == c \,||\, b == c) \;?\; c : d$$



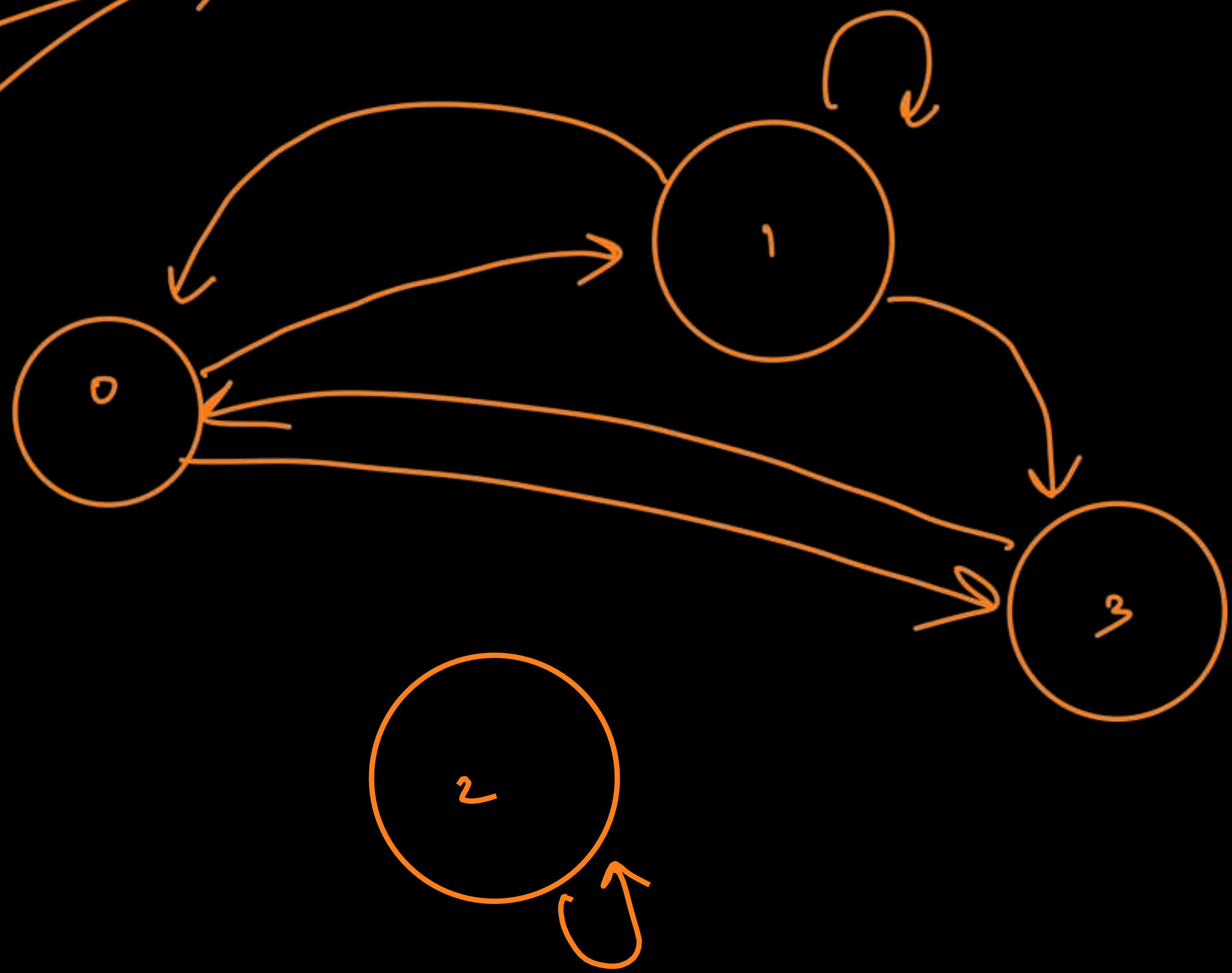
the set of keys inside a room tell us the neighbours of the node (room).

adj list

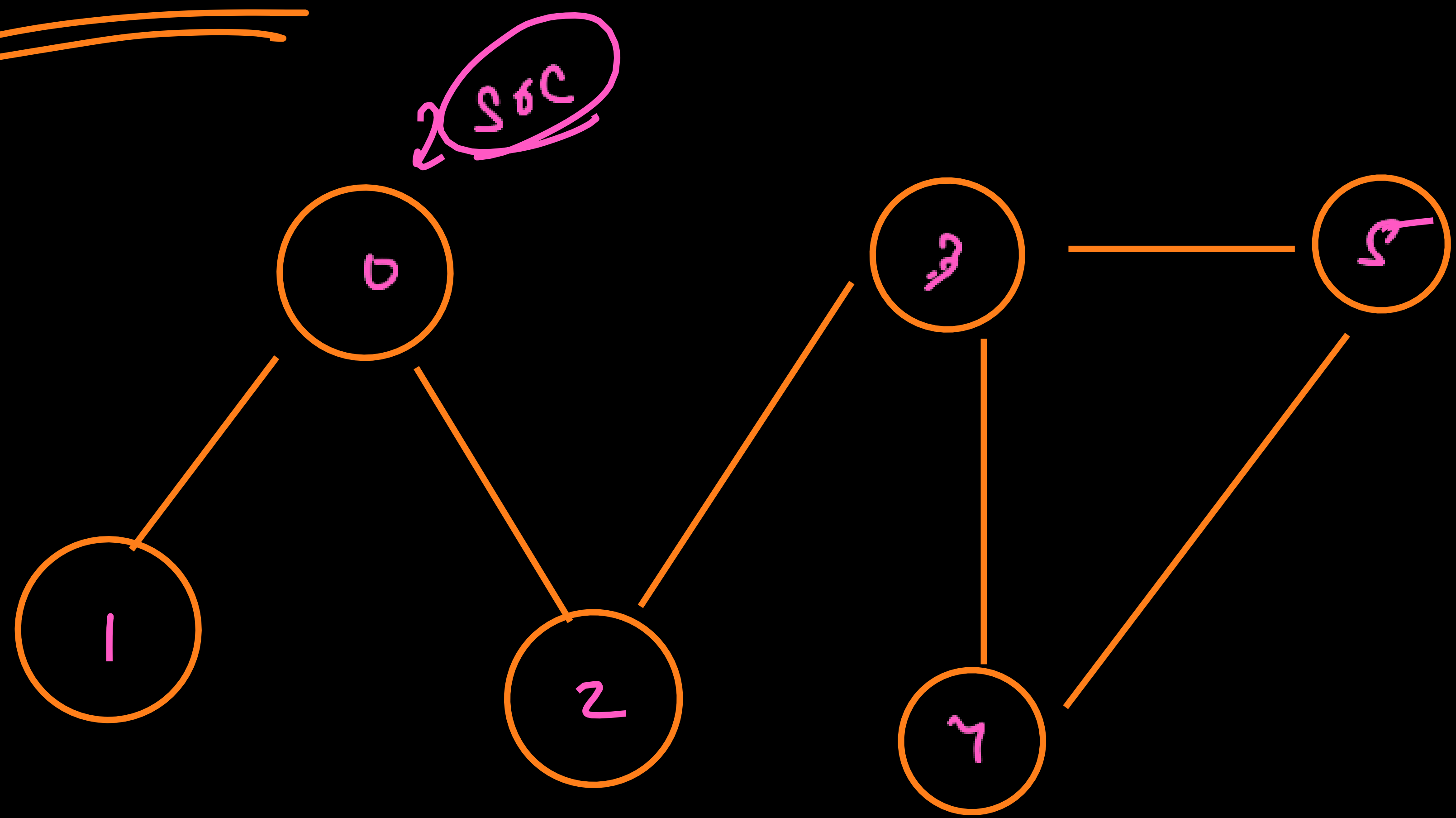
visited

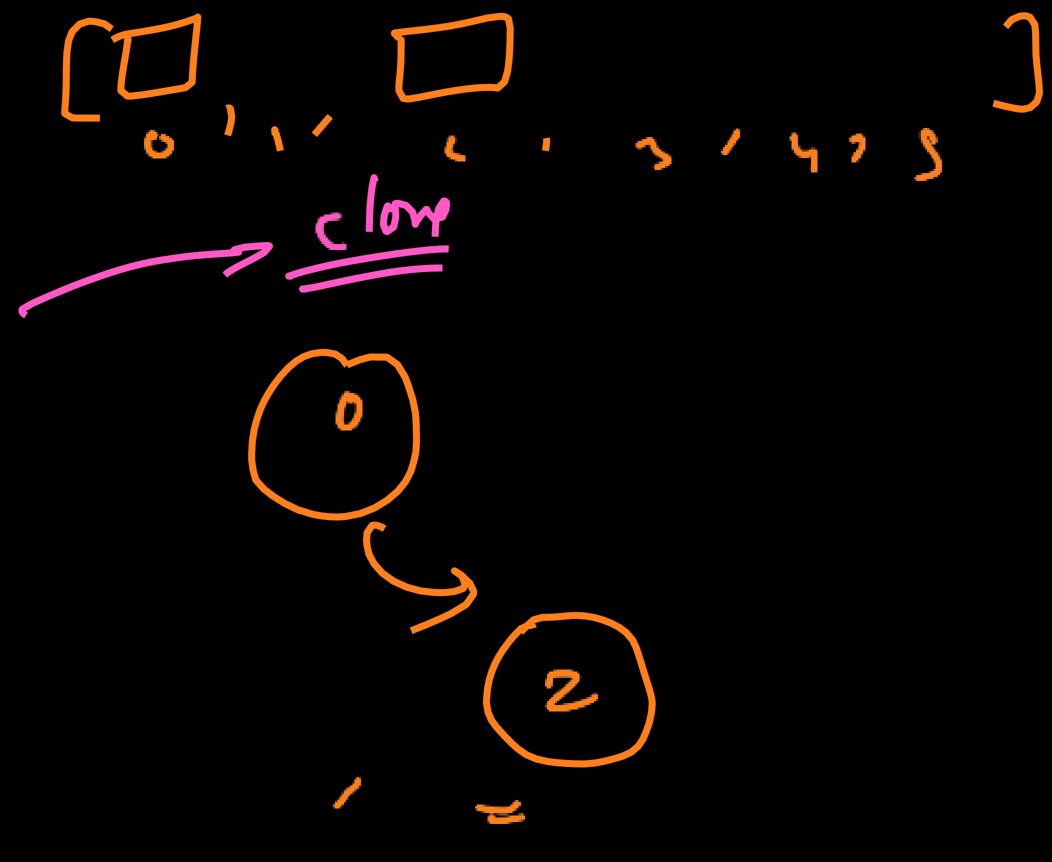
$$\begin{array}{cccc} 0 & 1 & 2 & 3 \\ [\,[1,3] & [3,0,1] & [2,] & [0,]\,] \end{array}$$

Read the graph



leetcode 133

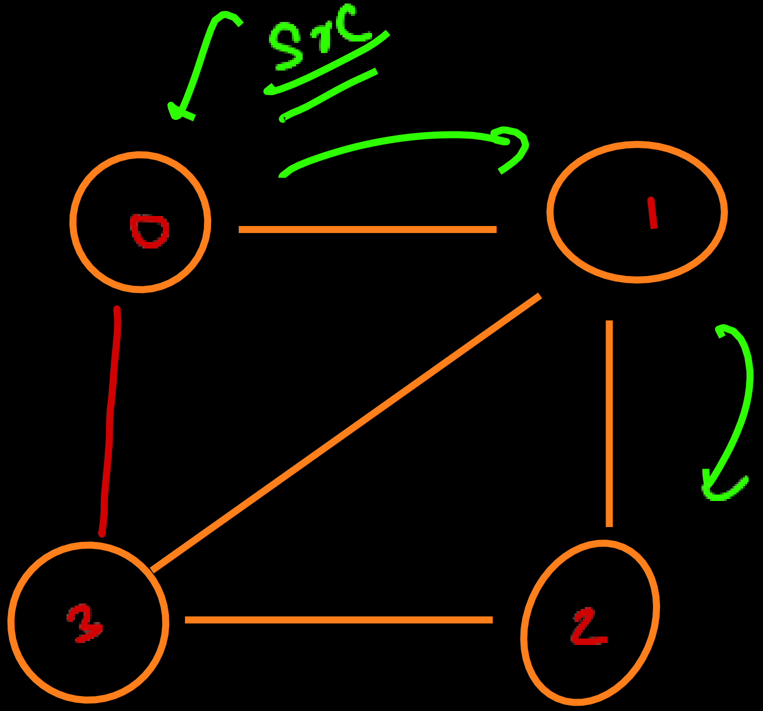




How to identify if we already created a node ??

vector < Node* > nodeRegister

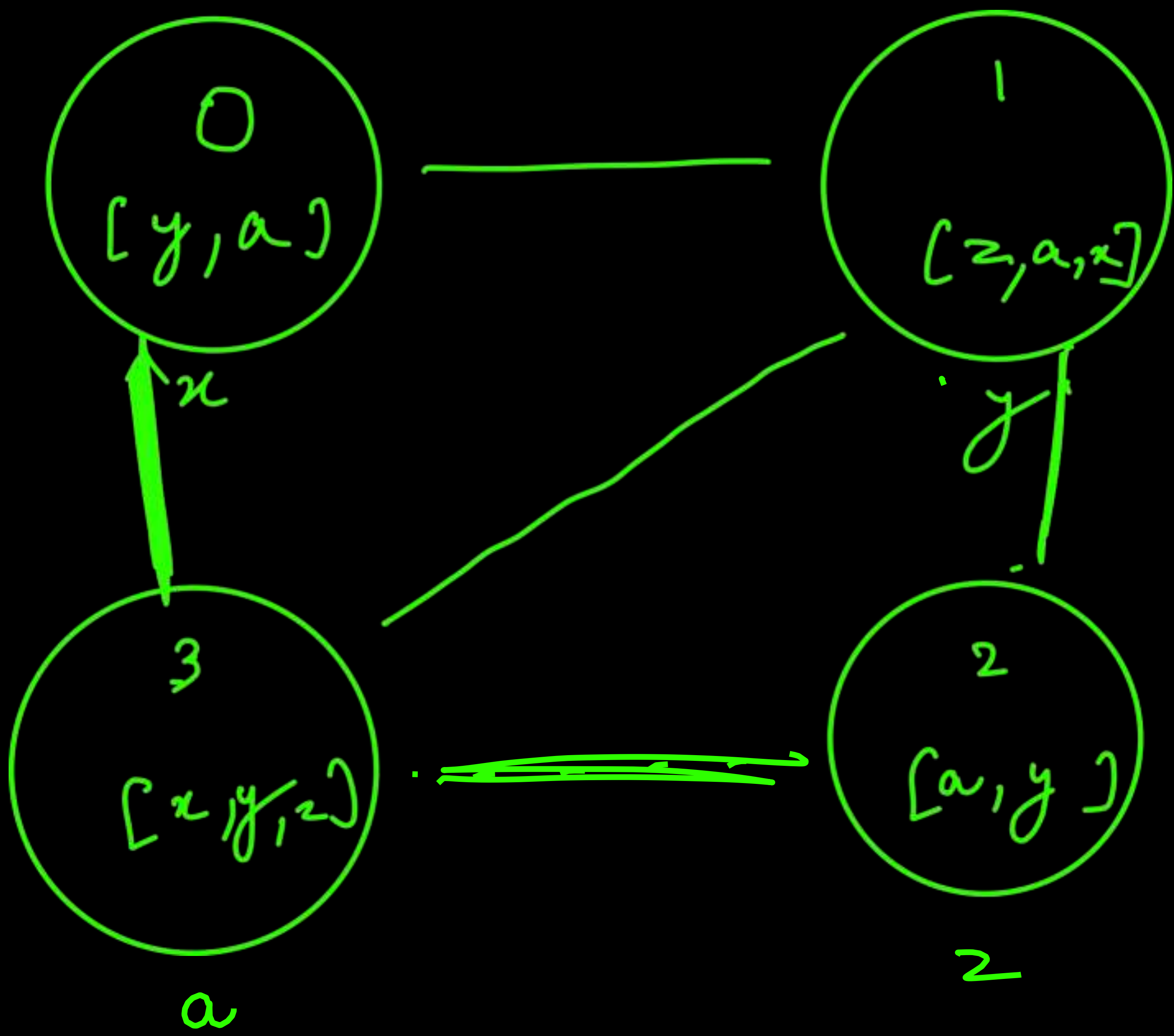
.nodeRegister(i) → address of the newly created i^th node



[x , y , z , a]

0 , 1 , 1 ? 2 ? 3

node Lyla



dfs(node, clone)

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for (neigh : node)

if (! nodeRegtr [neigh->val]) {

create

...

Recur

} else

neigh add

}

THANK YOU