Topological Sort → DAG → why?

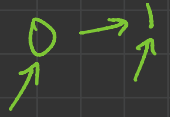
→ DAG:- Directed Acyclic graph

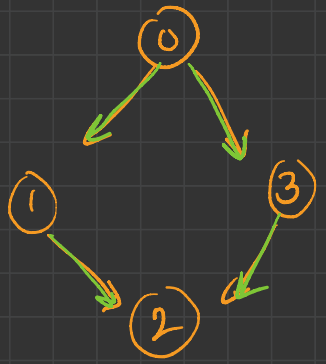
no cycle

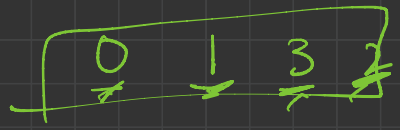
→ what? → Linear ordering of vertices such that

for every edge $u \to v$

u always appears before v in that ordering

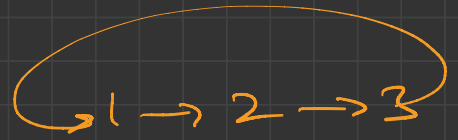






→ Valid TS

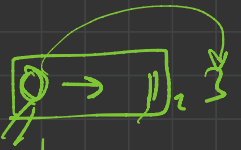
3 2 1 0 → Invalid T.S



1 → 2

2 → 3

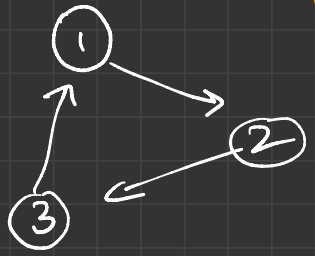
3 → 1

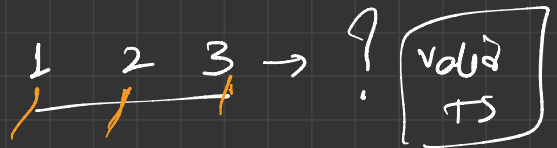


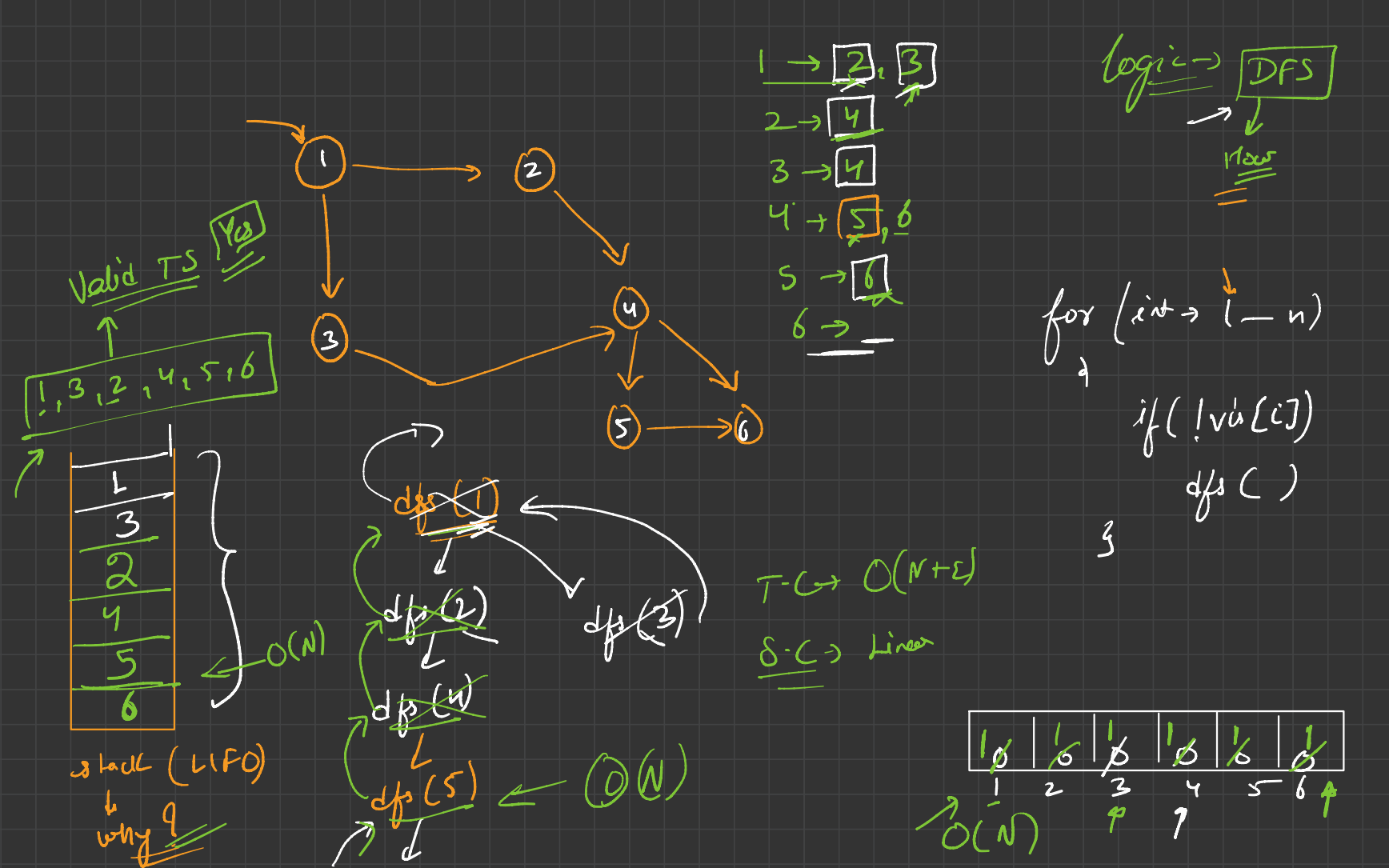
1 → 2

2 →

3 → 2






1 → 2, 3
2 → 4
3 → 4
4 → 5, 6
5 → 6
6 →
logic → DFS
Max
Valid TS
Yes
1, 3, 2, 4, 5, 6
for (int i = 1; i <= n; i++)
{
if(!vis[i])
dfs( )
}
1
3
2
4
5
6
O(N)
stack (LIFO)
why ?
dfs(1)
dfs(2)
dfs(3)
dfs(4)
dfs(5)
O(N)
T.C → O(N+E)
S.C → Linear
1 1 1 1 1 1
1 2 3 4 5 6
O(N)