

Graphs Class - 3

Special class



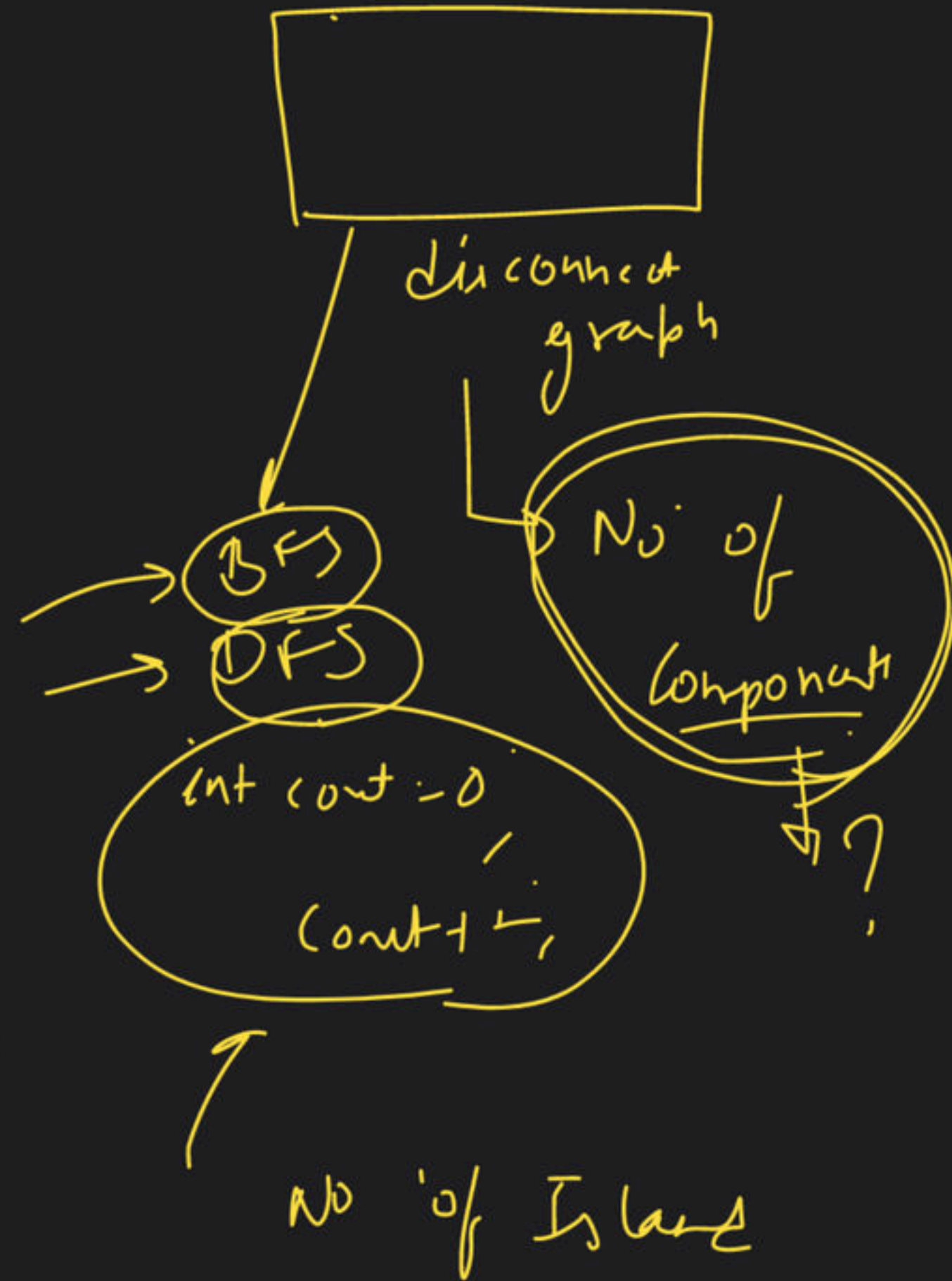
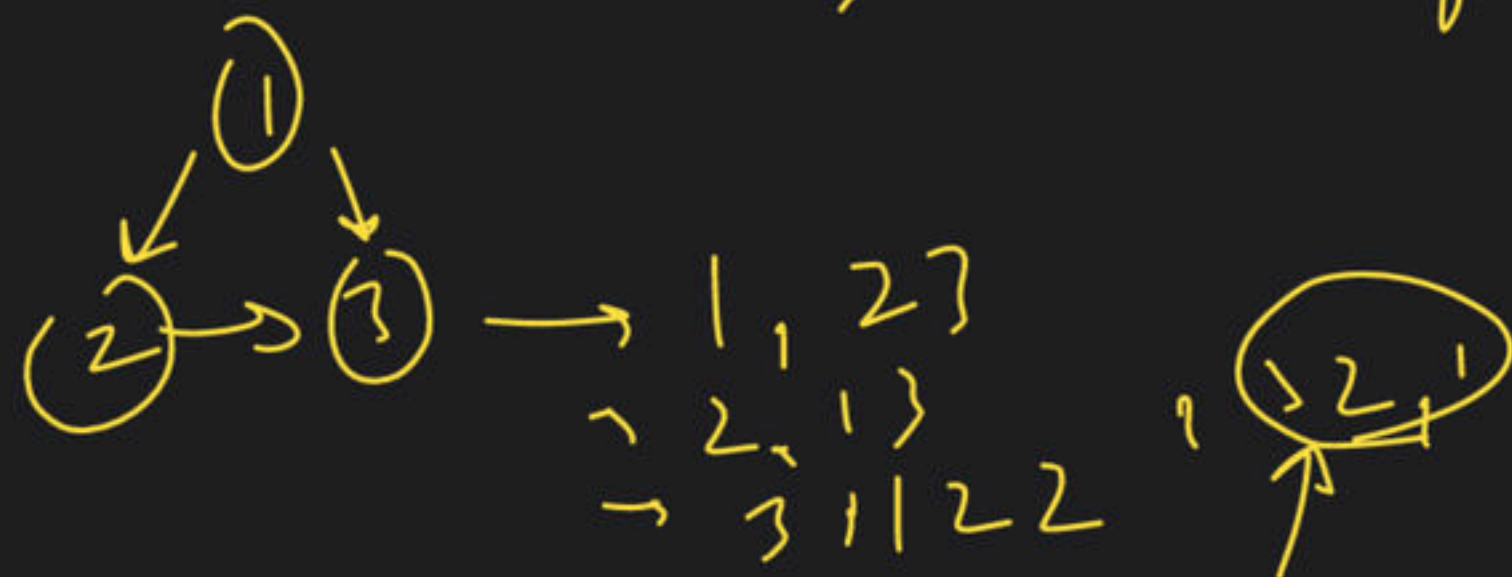
→ Topological Sort:-

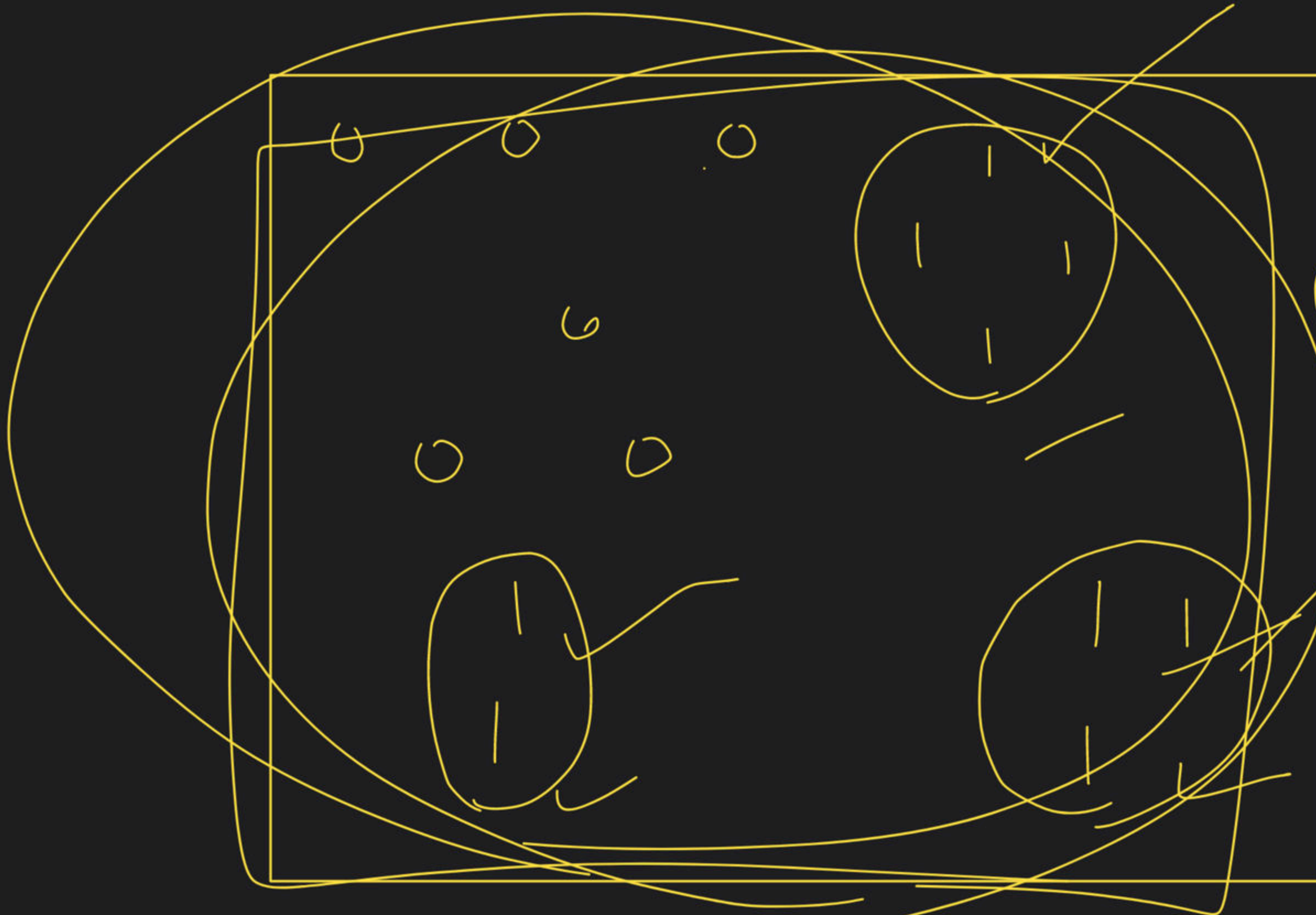
→ Linear ordering of vertices

such that

for every edge $u \rightarrow v$

u comes before v in
that ordering





V.V.V.V.V
↓
Grp

No. of
Islands

BFS
DFS

int n = 3

BFS DFS

BFS

Rotten tomatoes

Rotten Oranges

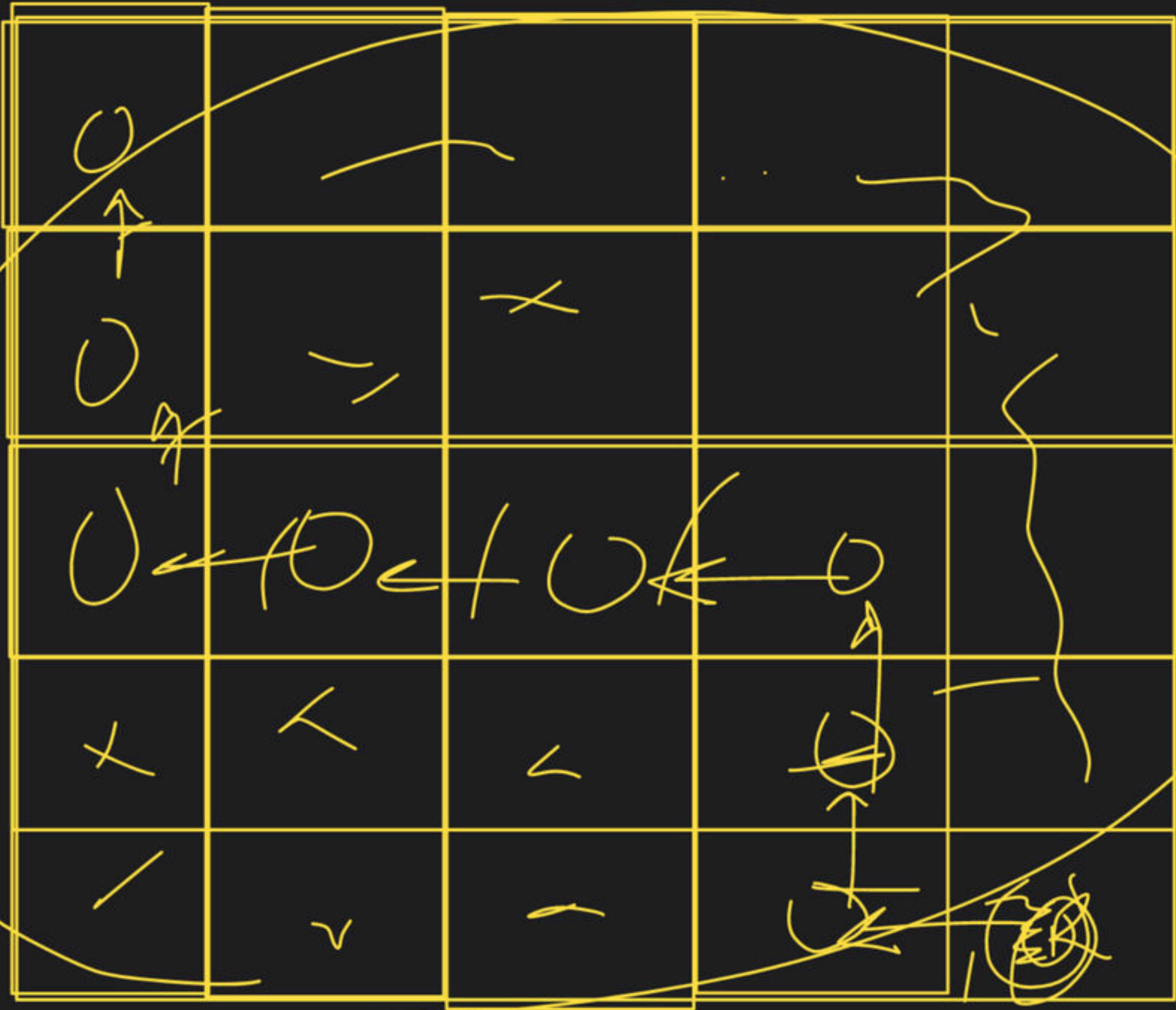
u.v.vv

lsc ->
1RU -> side
0

shortest
time
to rot
all oranges

100%

fs



make a ladder
problem

↑

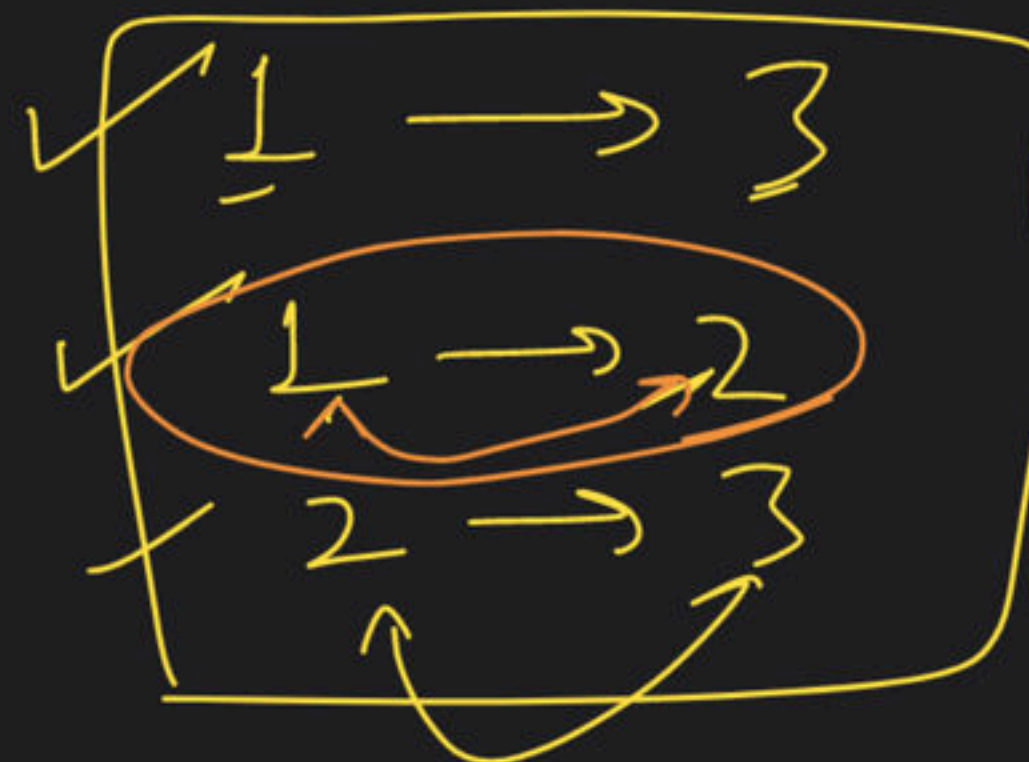
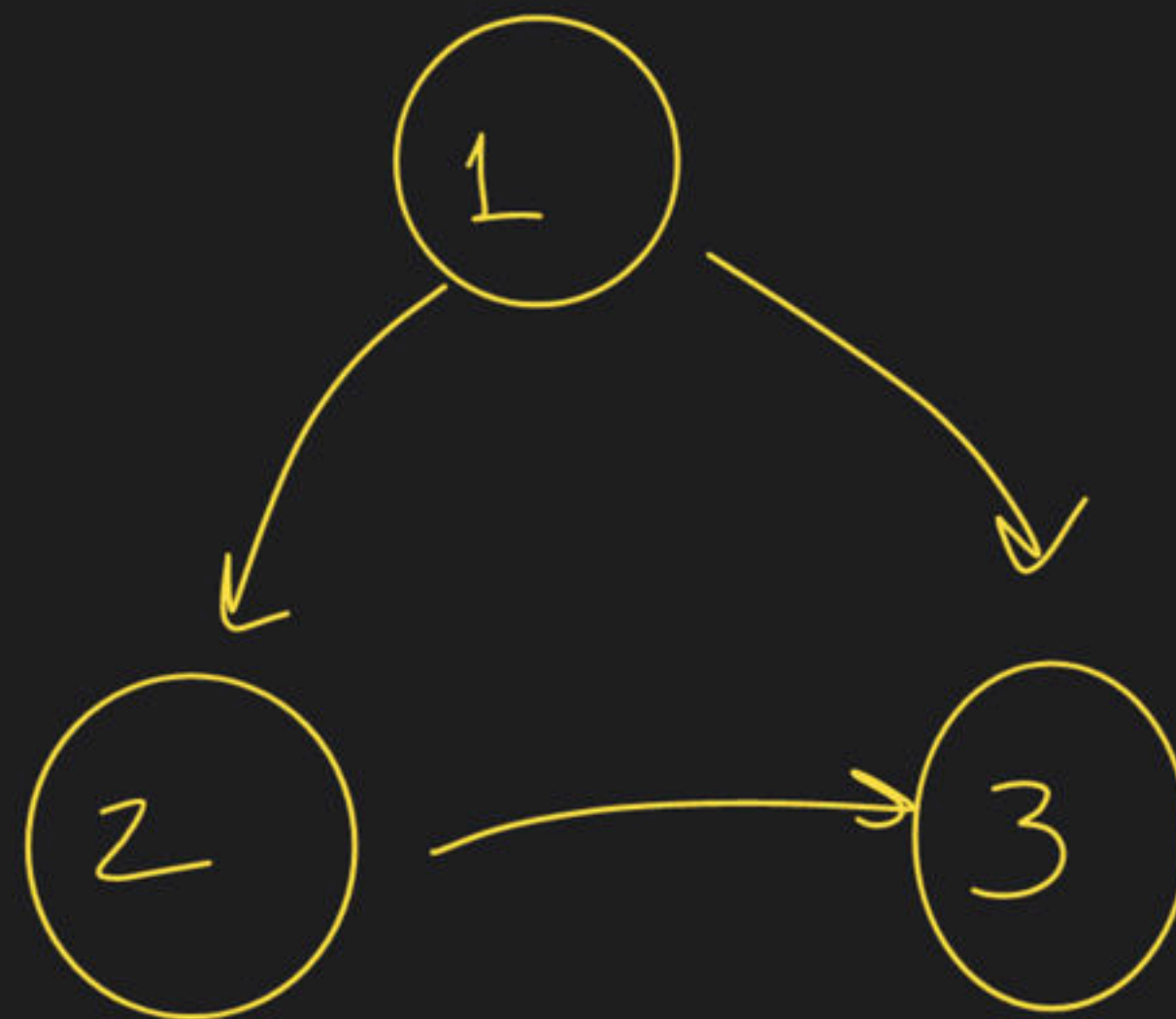
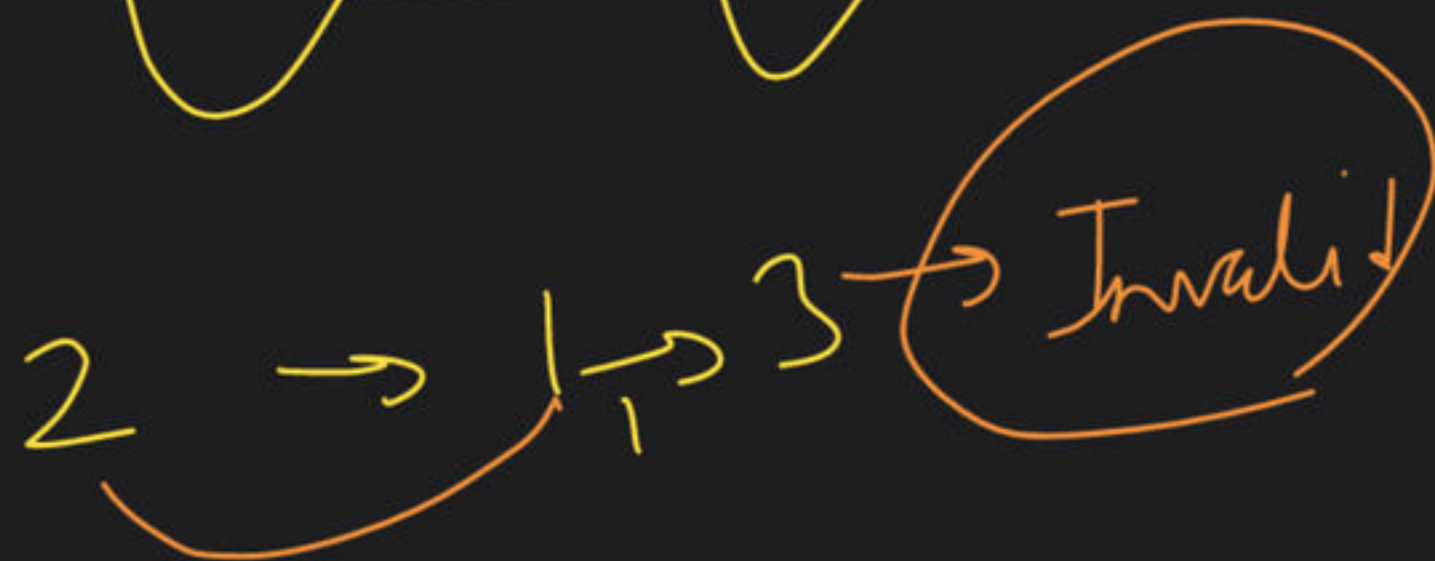
edge

Bridge in
a graph

remove

~~disconnected~~

Valid TS

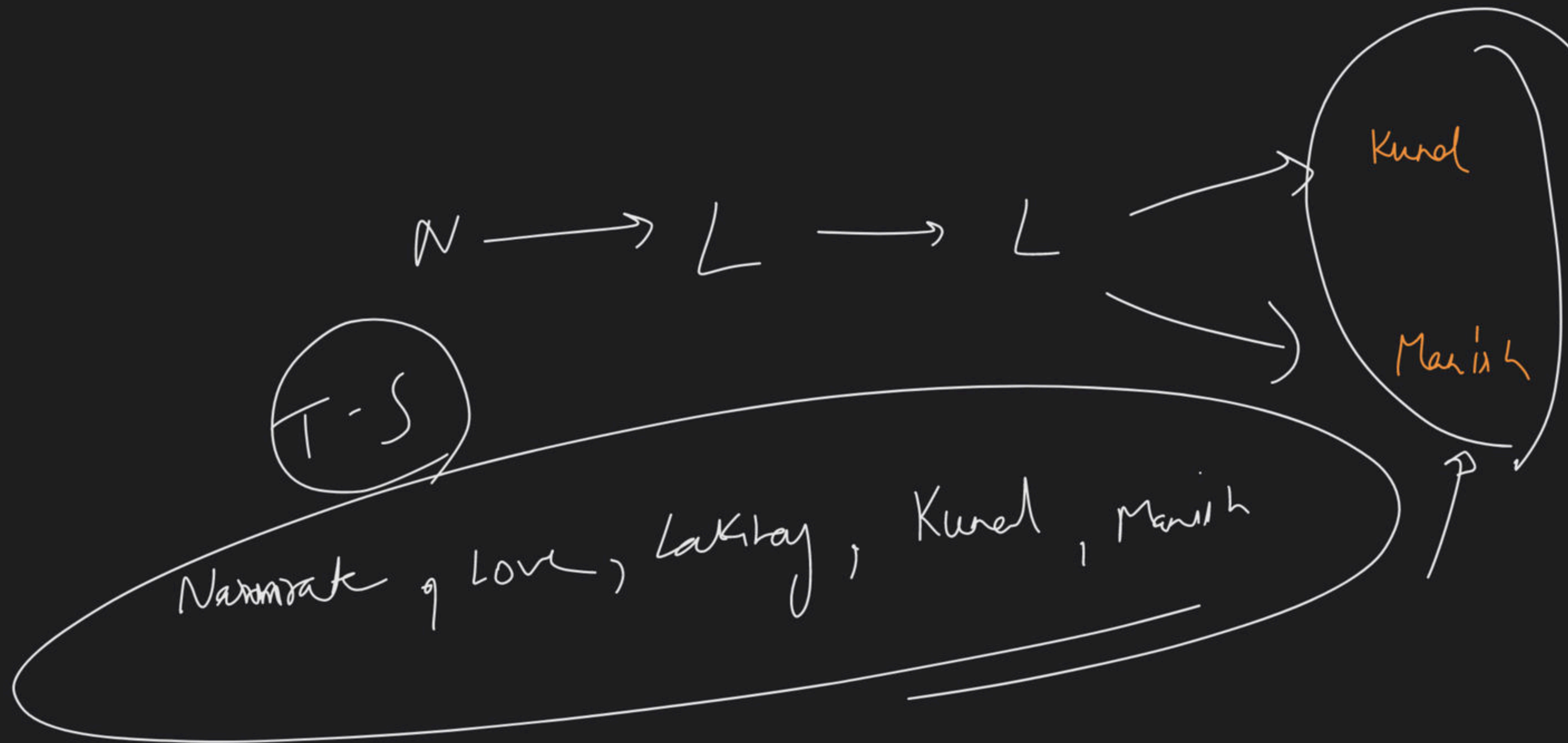


T-5

Node
↓

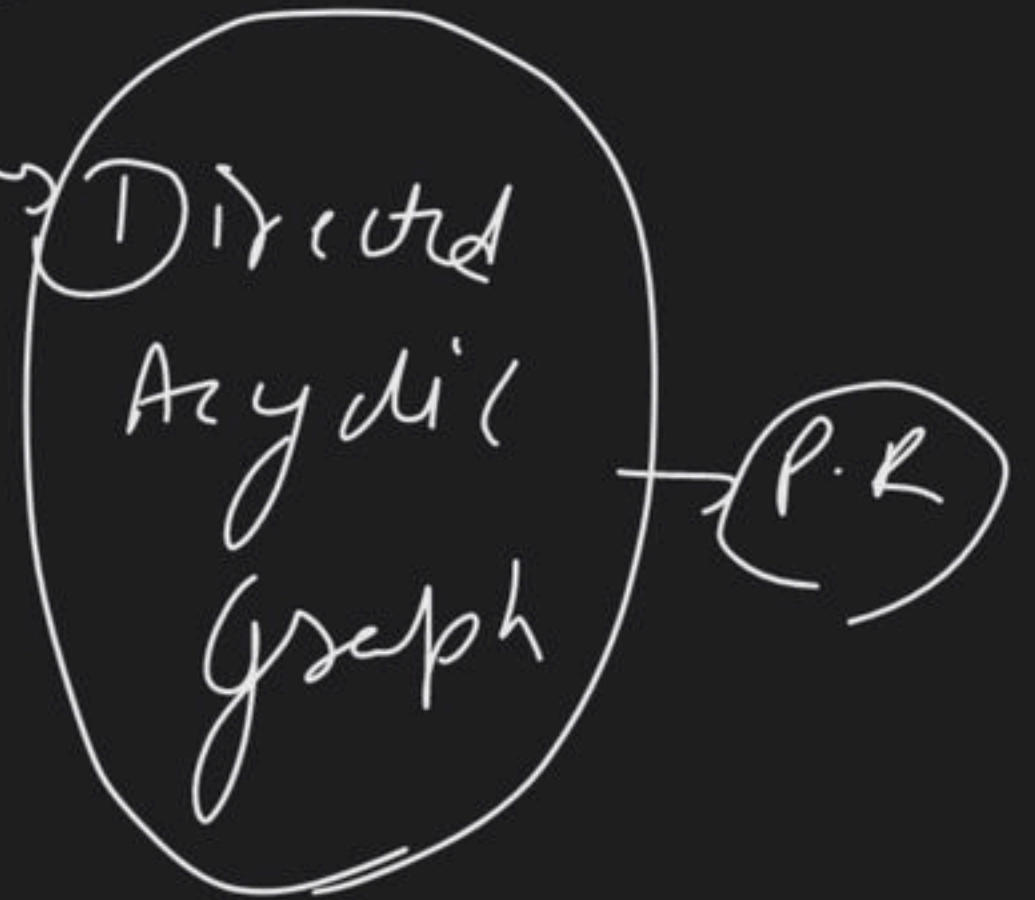
Ordering →

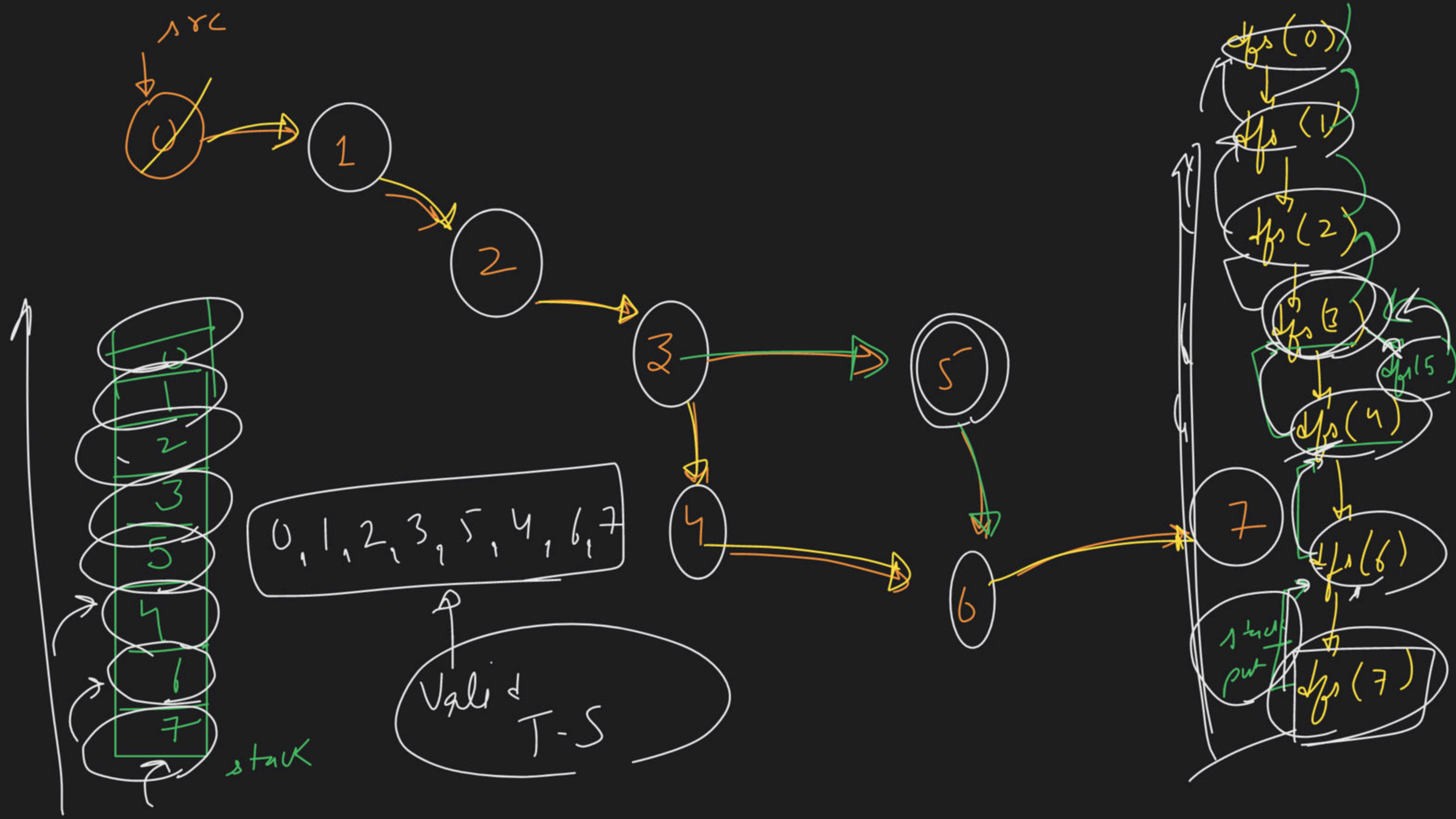
dependency X

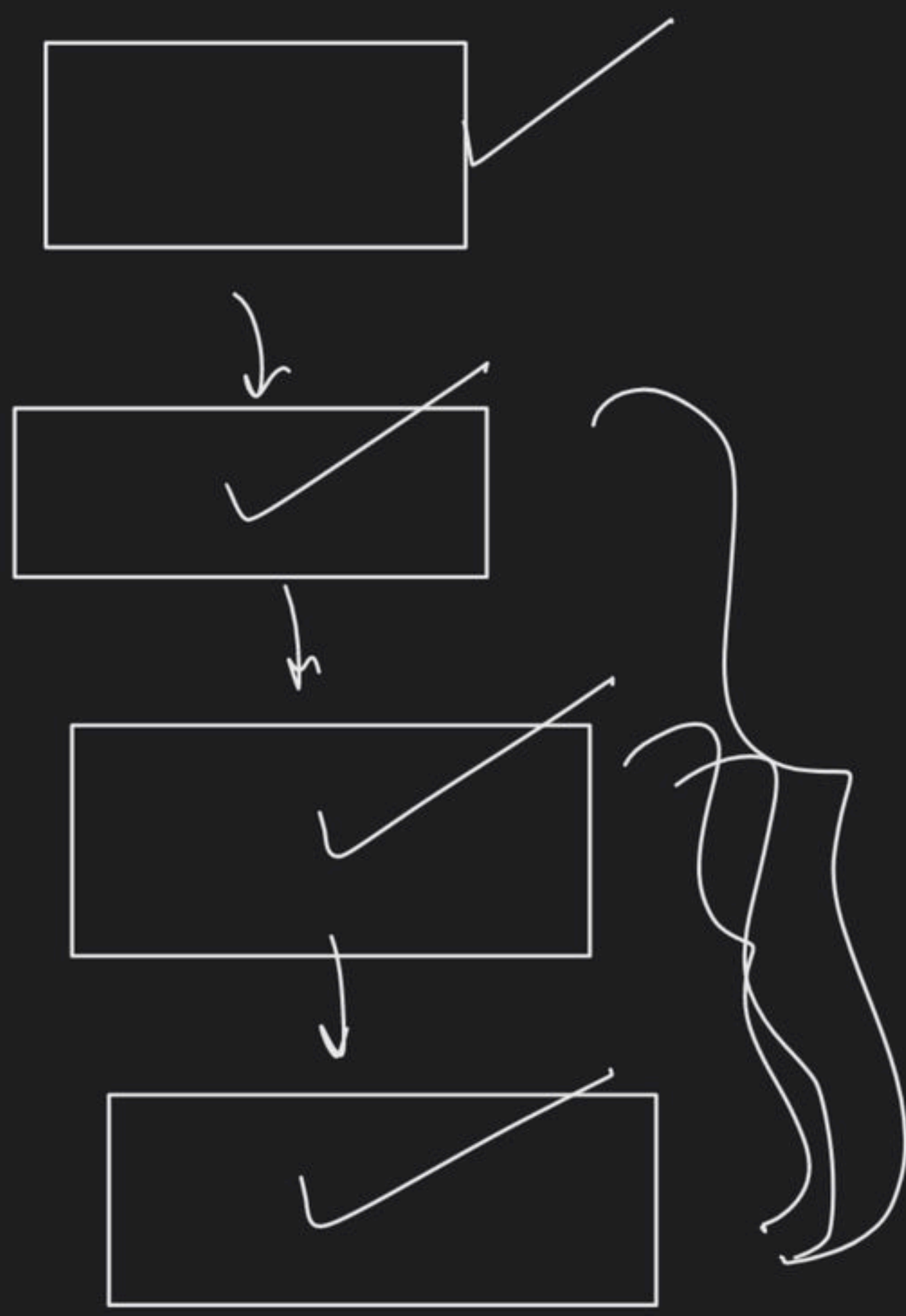


T.S. → DFS
→ BFS

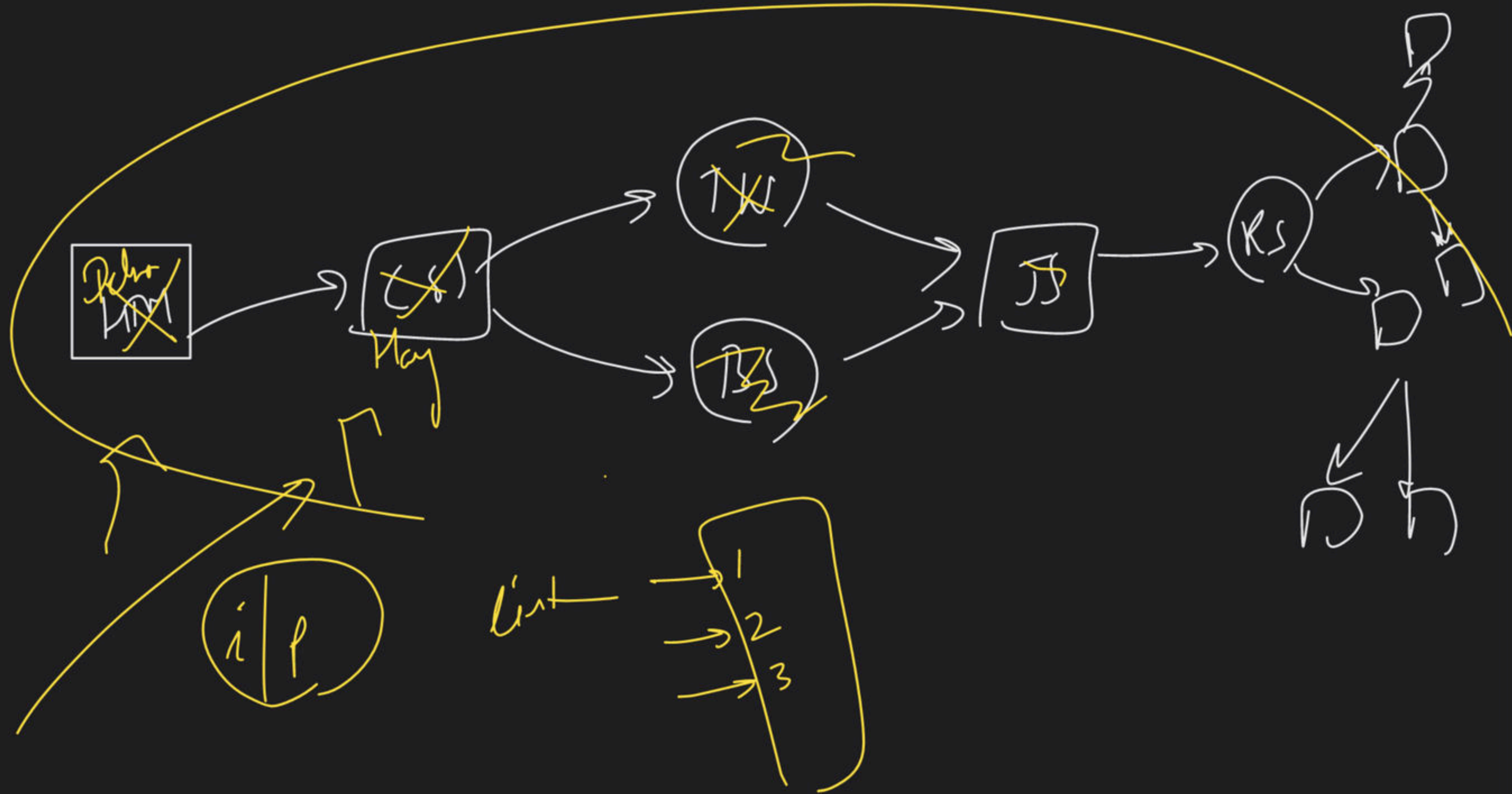
DAG





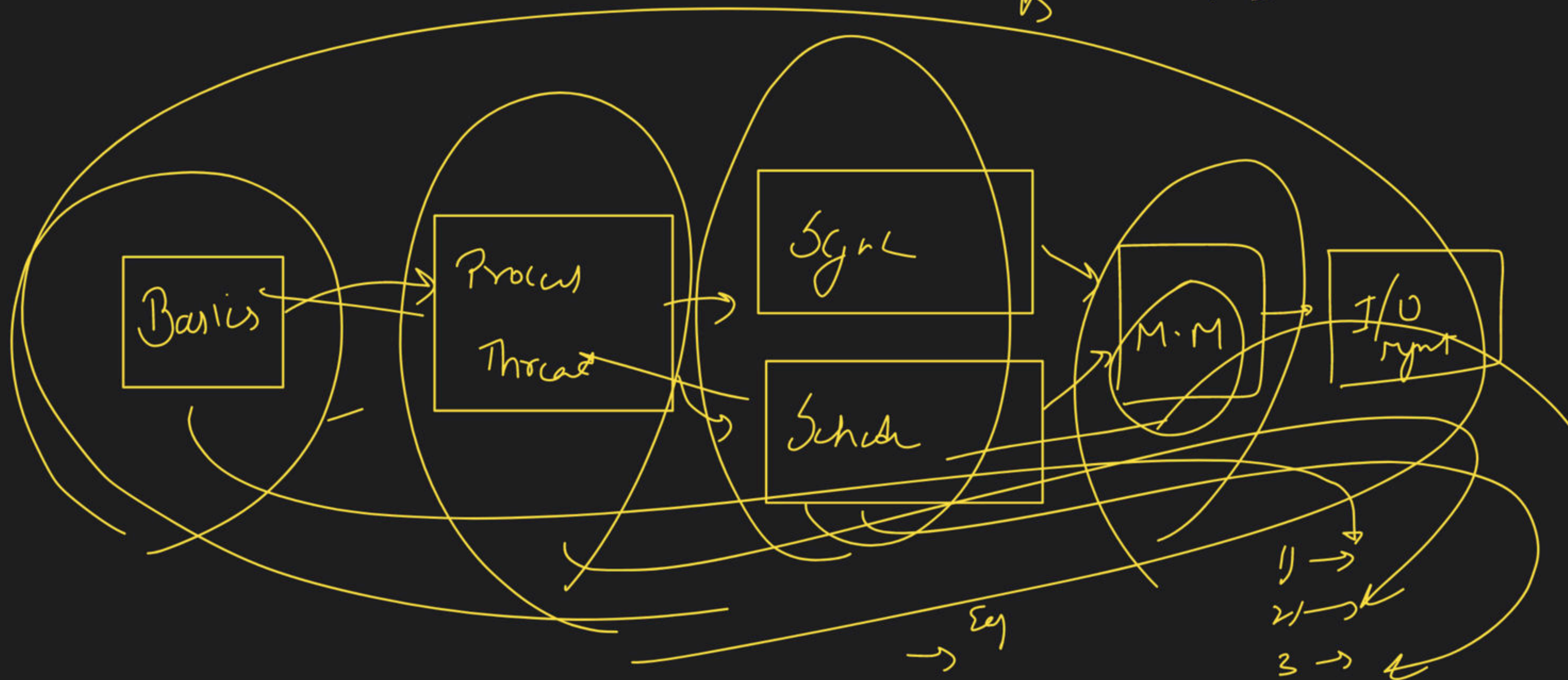


Roadmap



Operating System - (1 shot)

graph
T-S



0 | 1 | 2 | 4 | 3 | 5 | 6 | 7

0 1 1 2 2 4 2 5 6 7

queue
↓
self visit
key ←

T.S →

BFS → ?

Kahn's algo

independent

31 bill

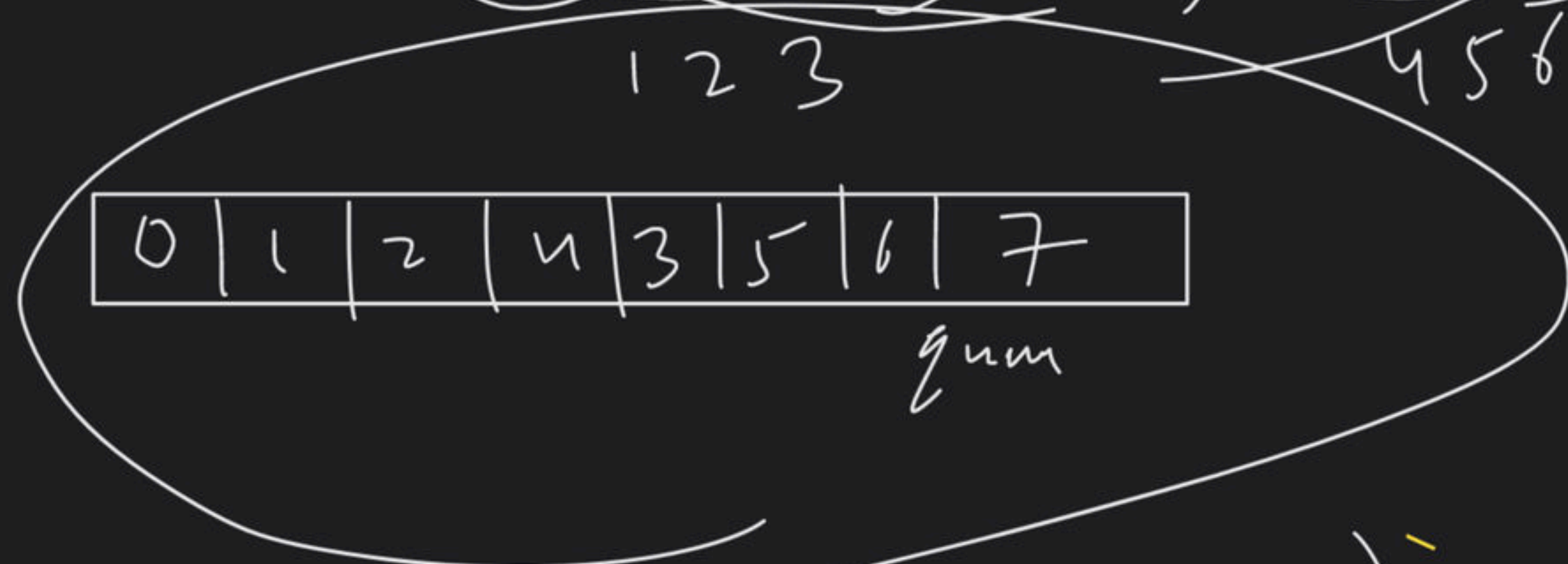
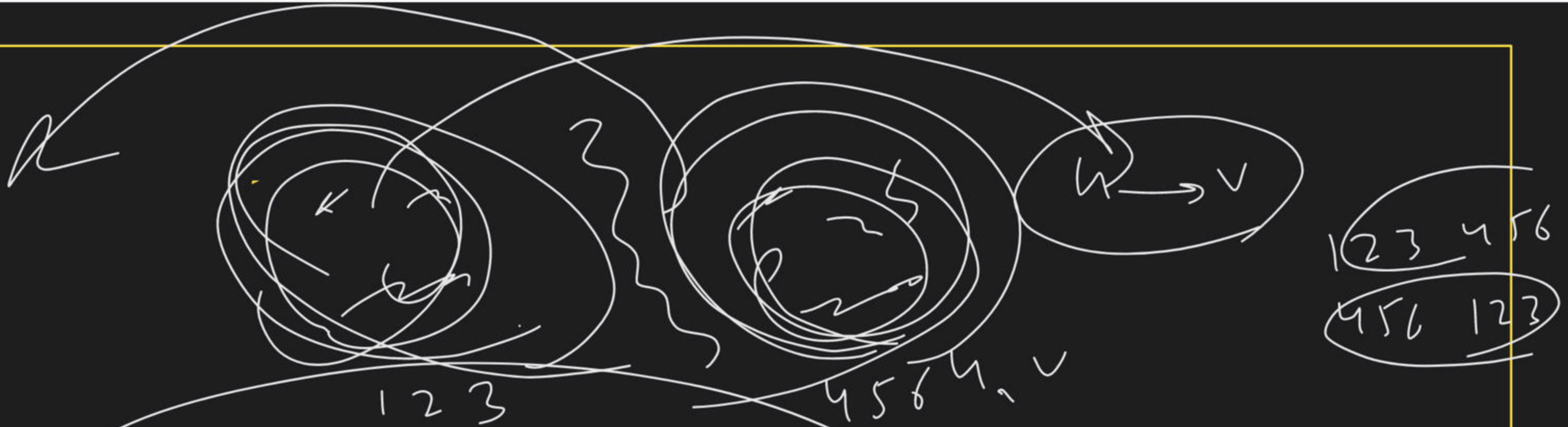
in degree = 0

DAU

Cyclic
or
apply
Kyn
hmr

↓

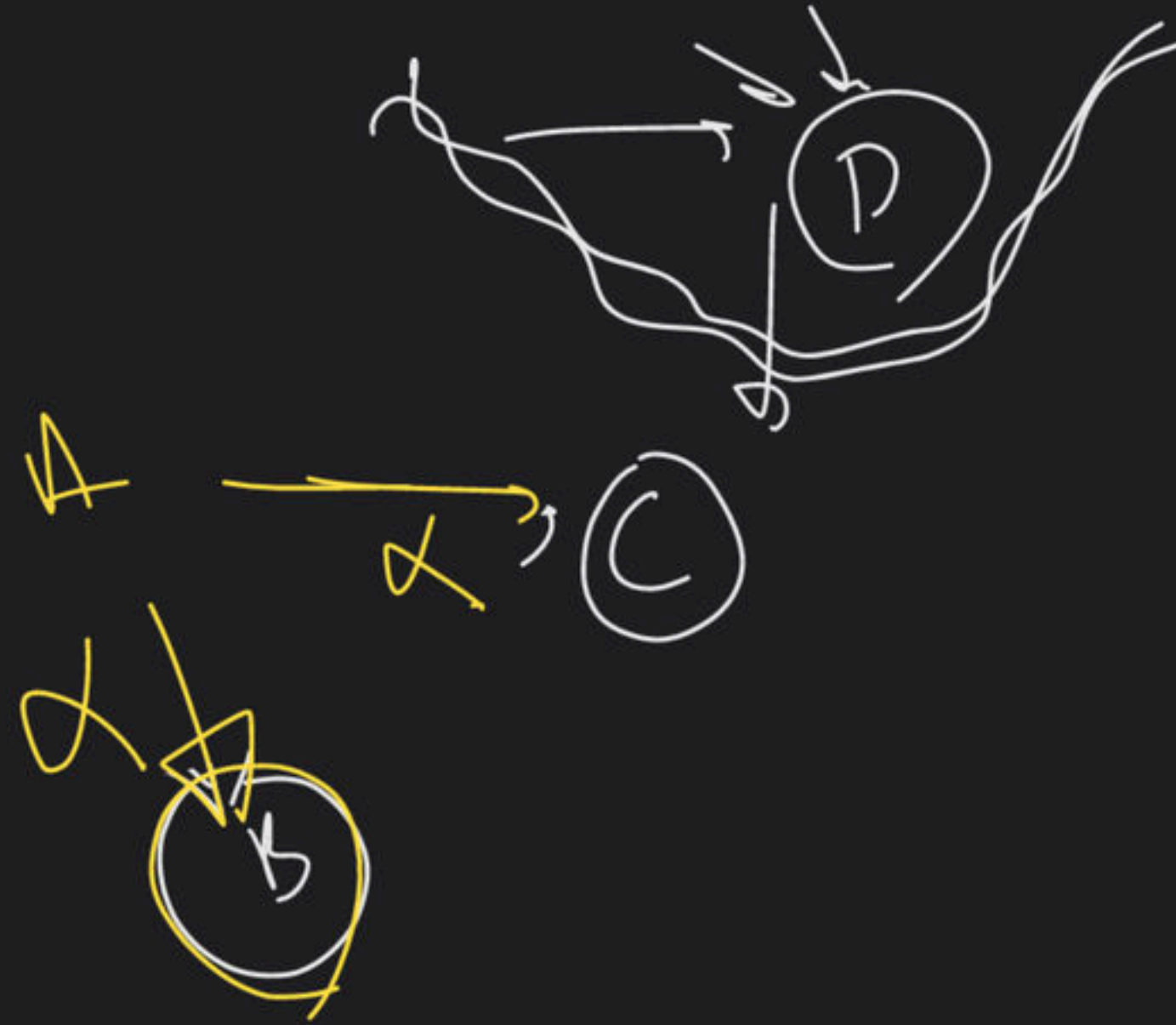
✗



for v {
 if $!v$
 }
 dfs

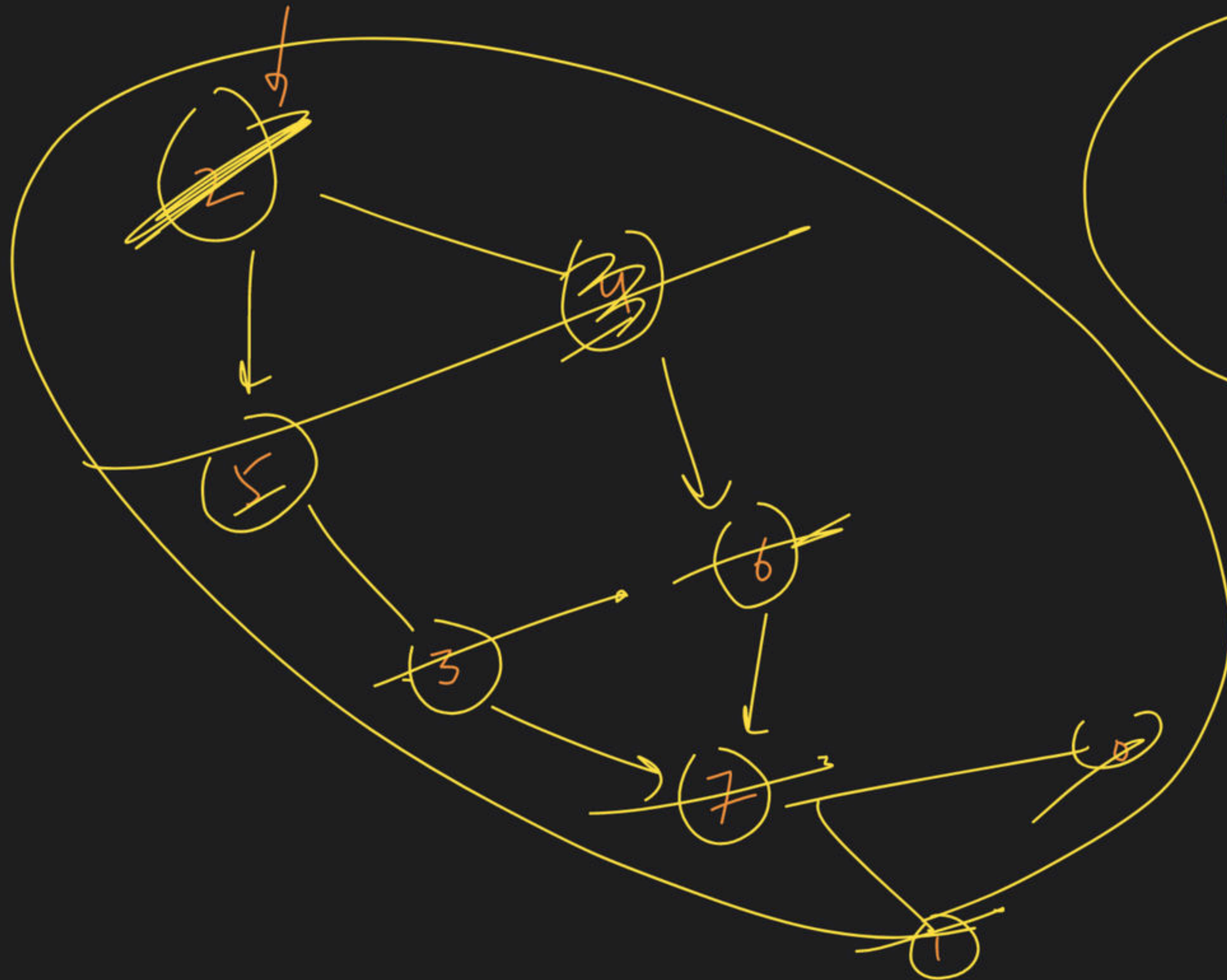
7

indgree
 ~~$4 \rightarrow 0$~~
 ~~$4 \rightarrow 0$~~
 ~~$2 \rightarrow 0$~~
 $3 \rightarrow 1$
 ~~$4 \rightarrow 0$~~
 $5 \rightarrow 1$
 $1 \rightarrow 1$
 $7 \rightarrow 2$



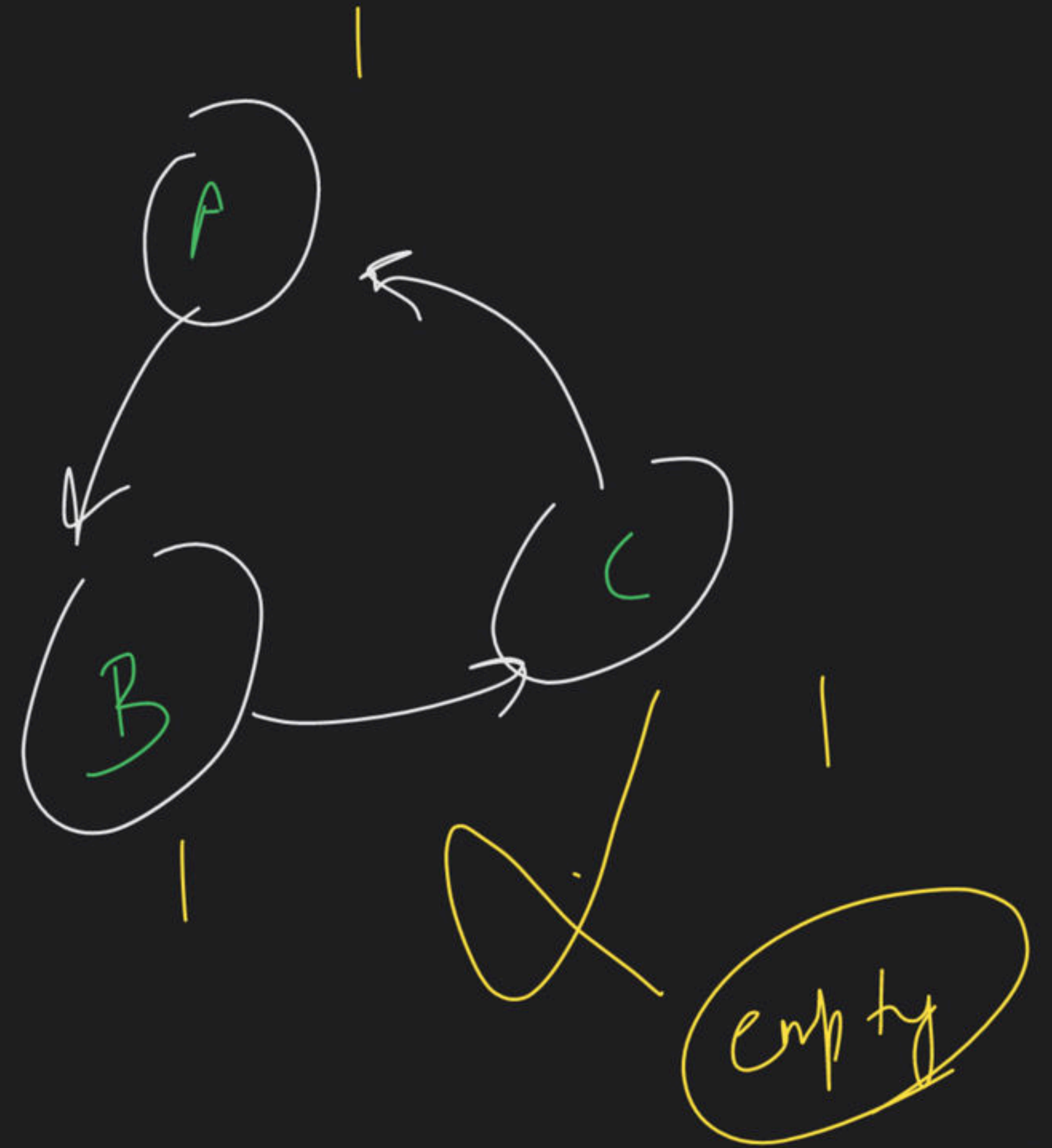
in
A \rightarrow 0
B \rightarrow 10
C \rightarrow 2/1

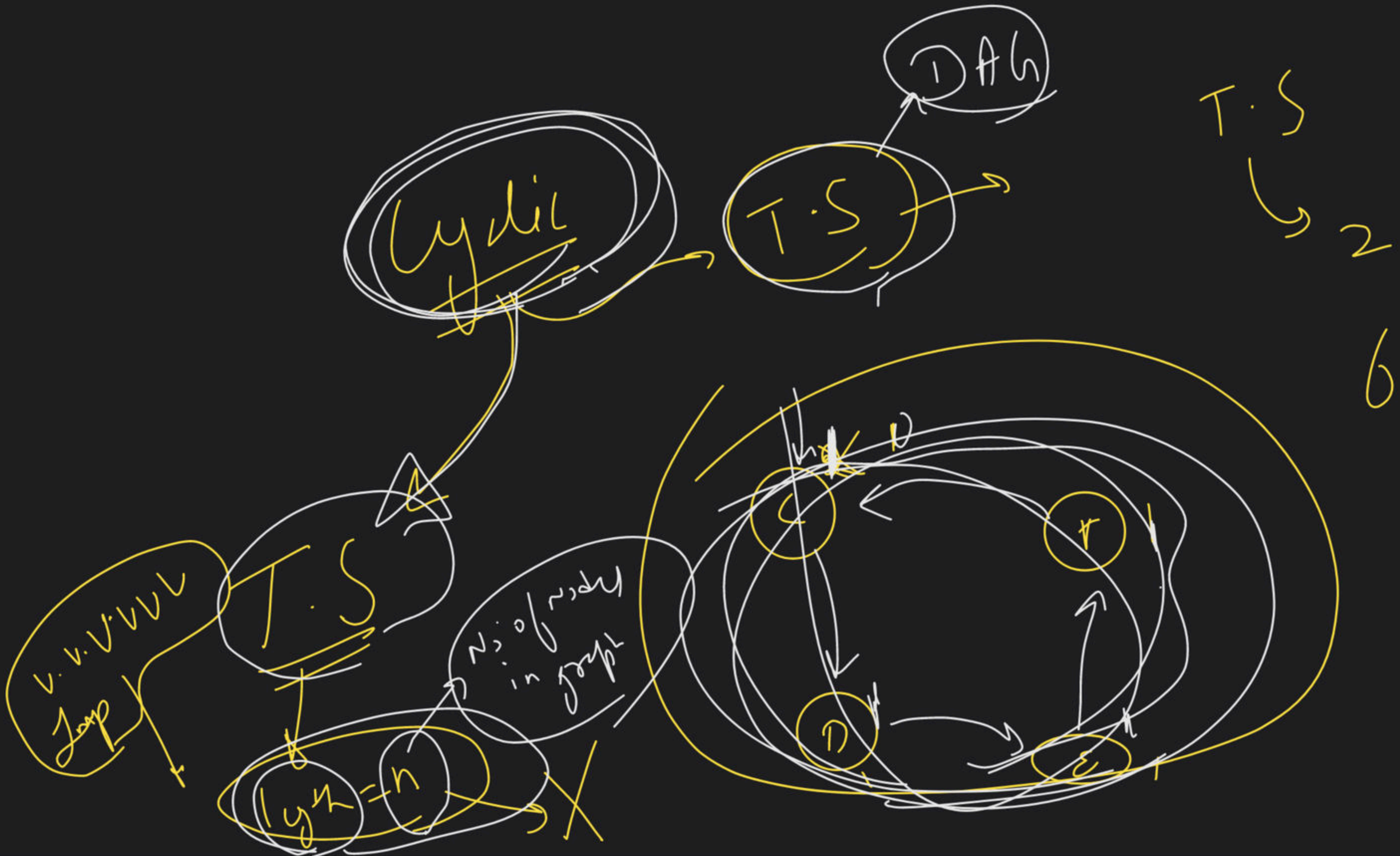
after removal of A
↓
nbr of A
↳ indegree (-1)



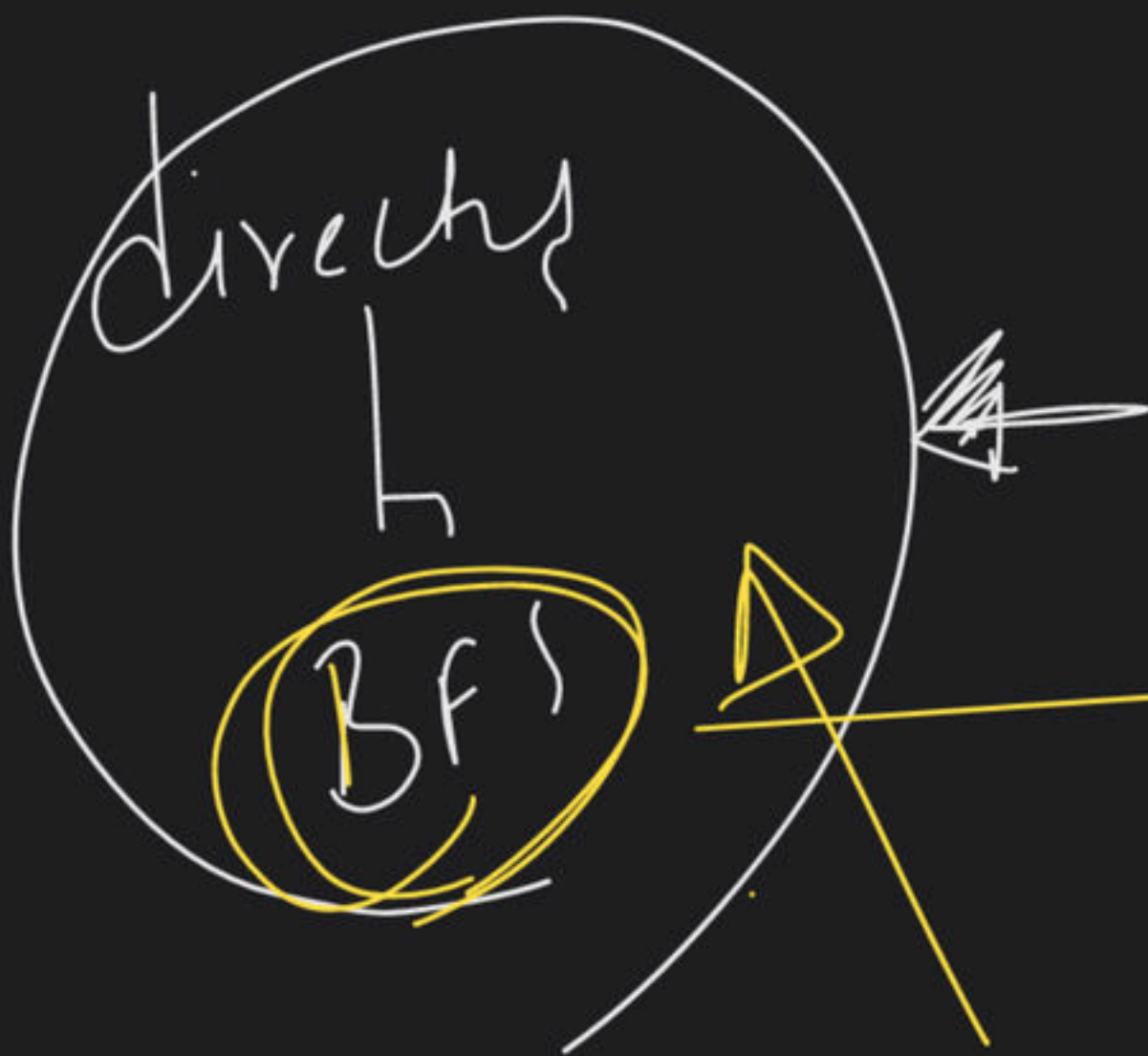
Kahn's
algo







Cyclil detection

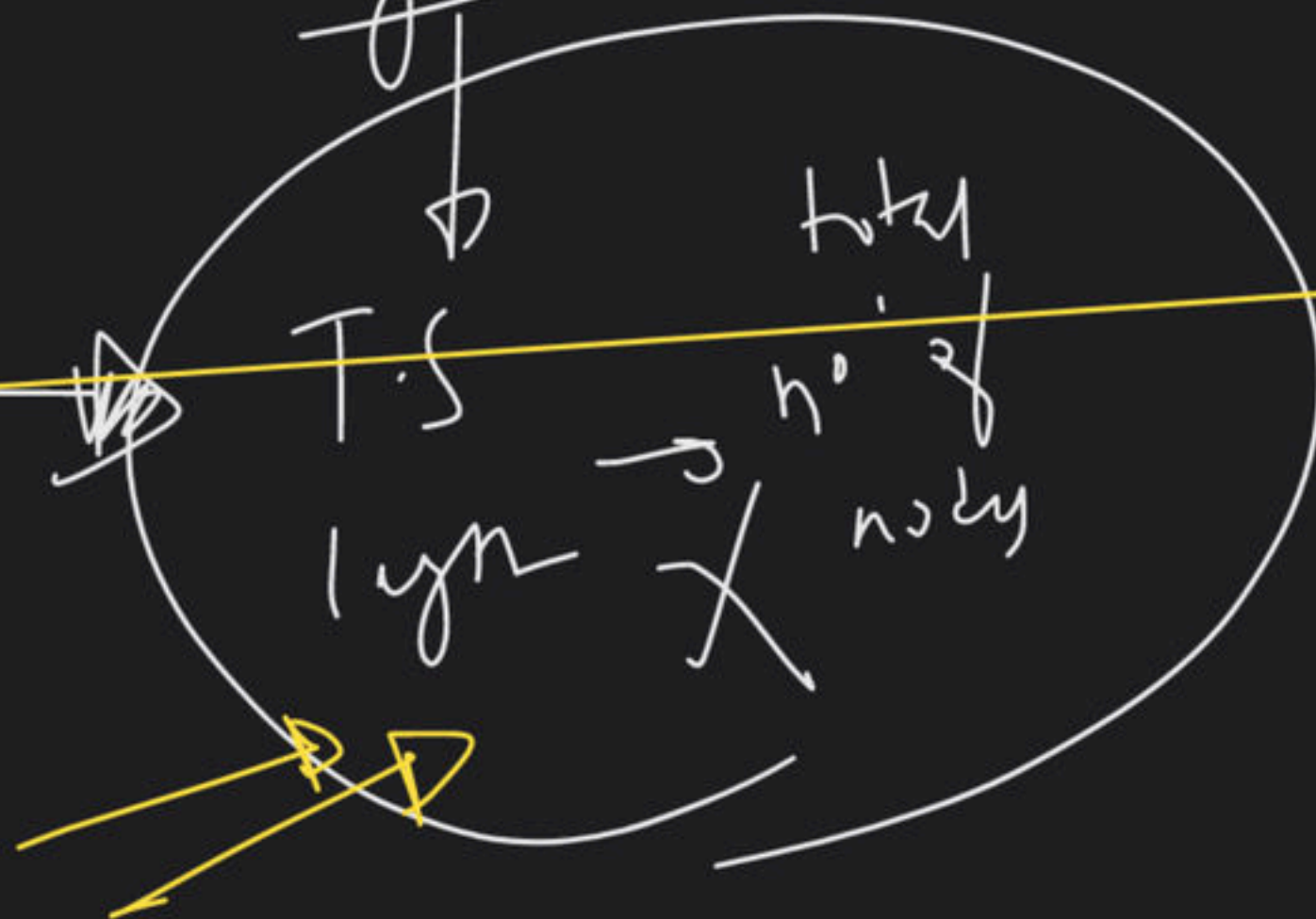


T.S

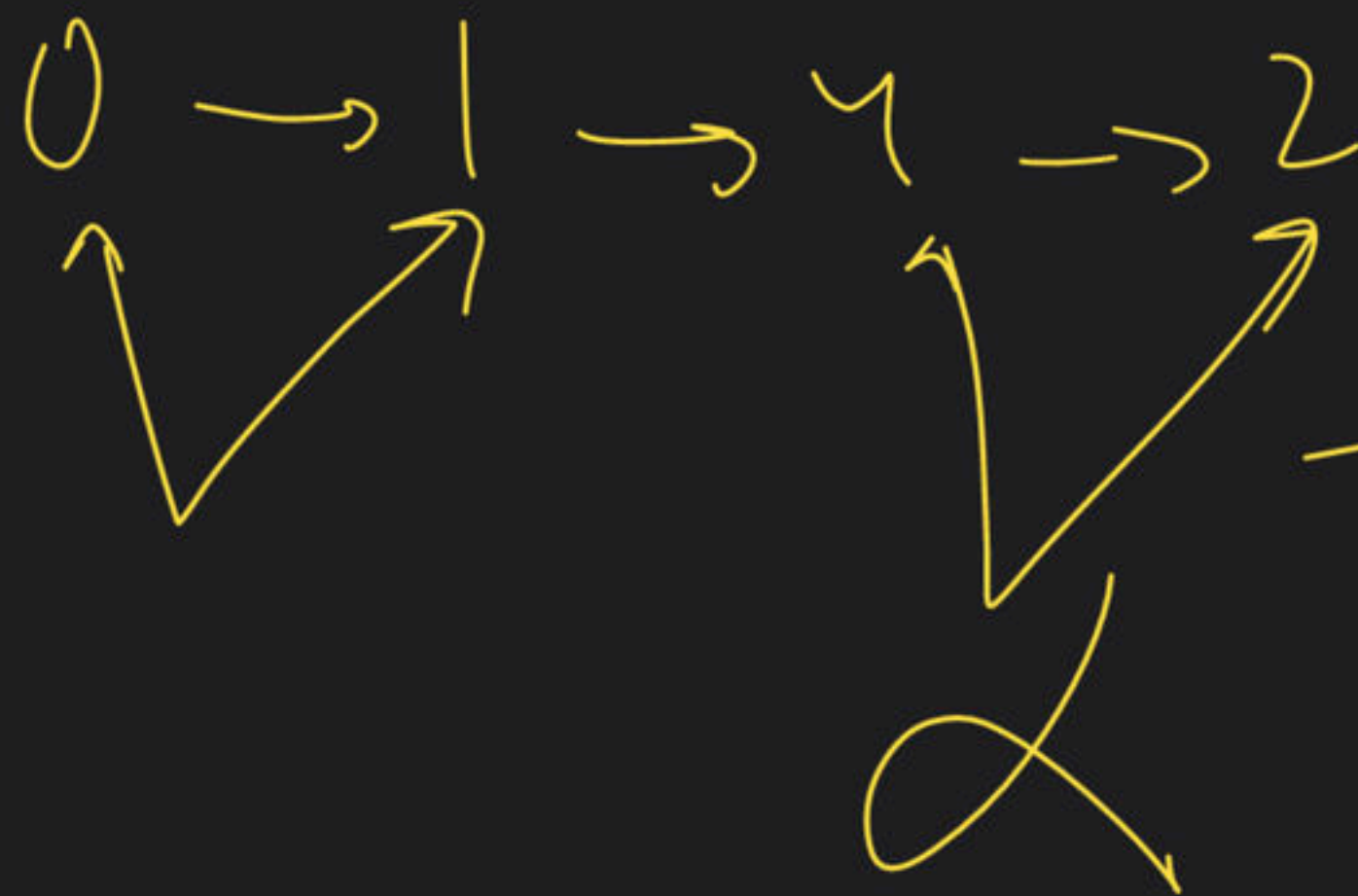
DAG

Cyclil

→
Angi-
gen

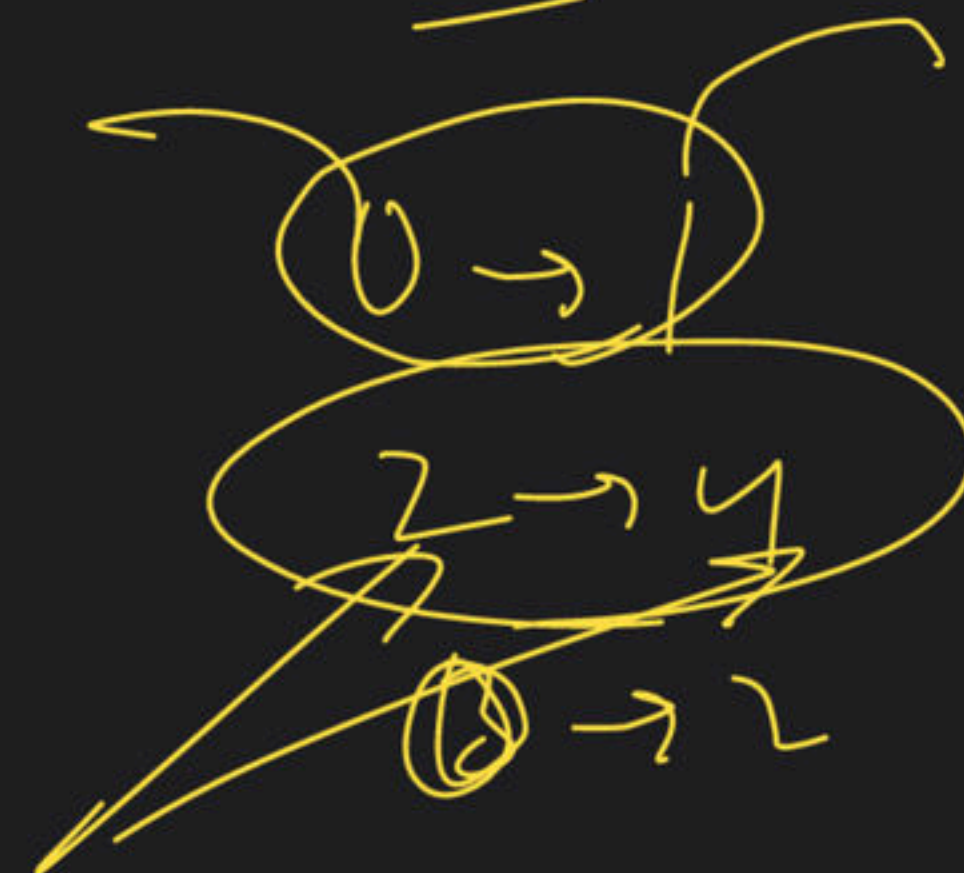


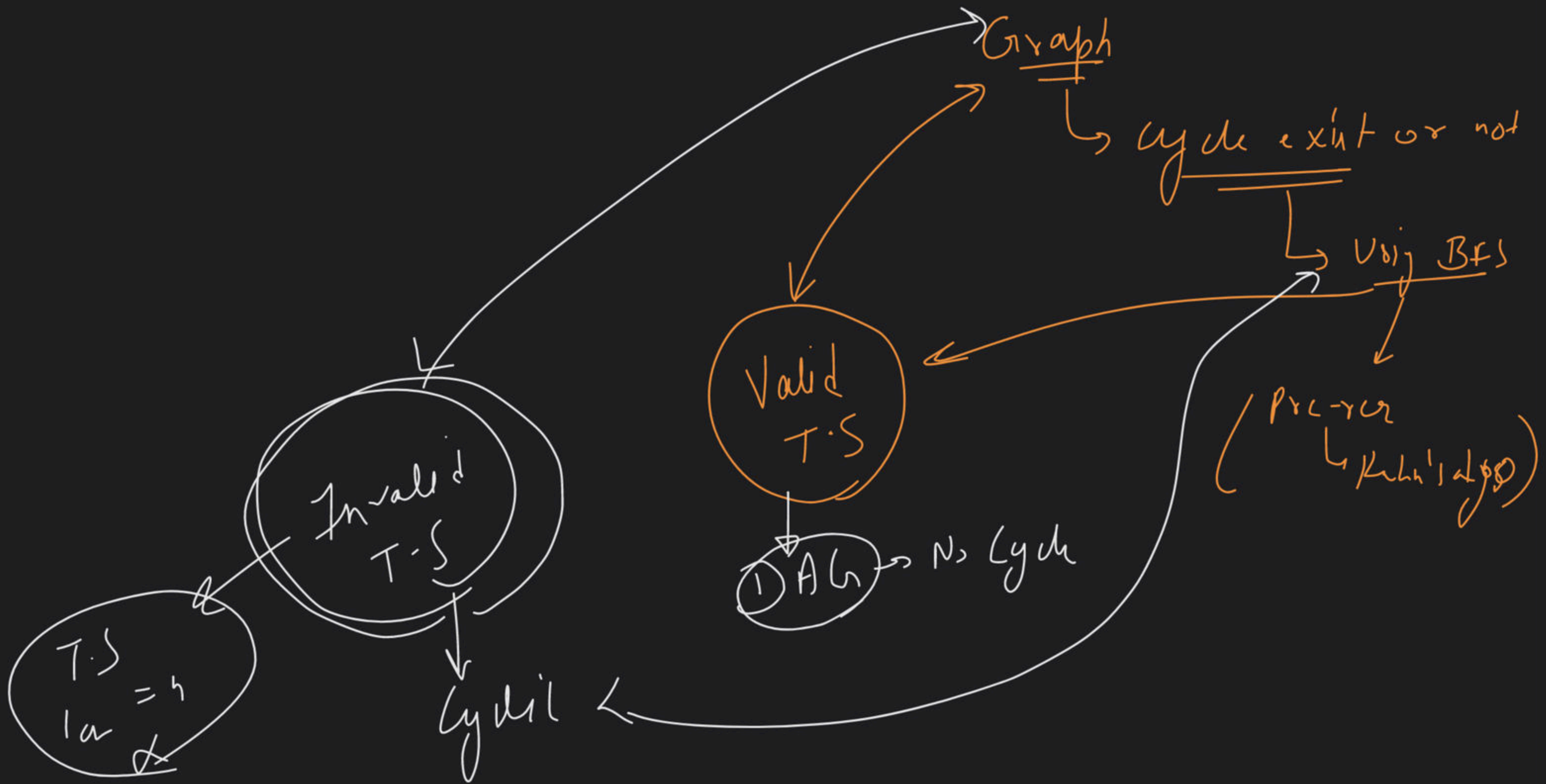
Valid / Invalid



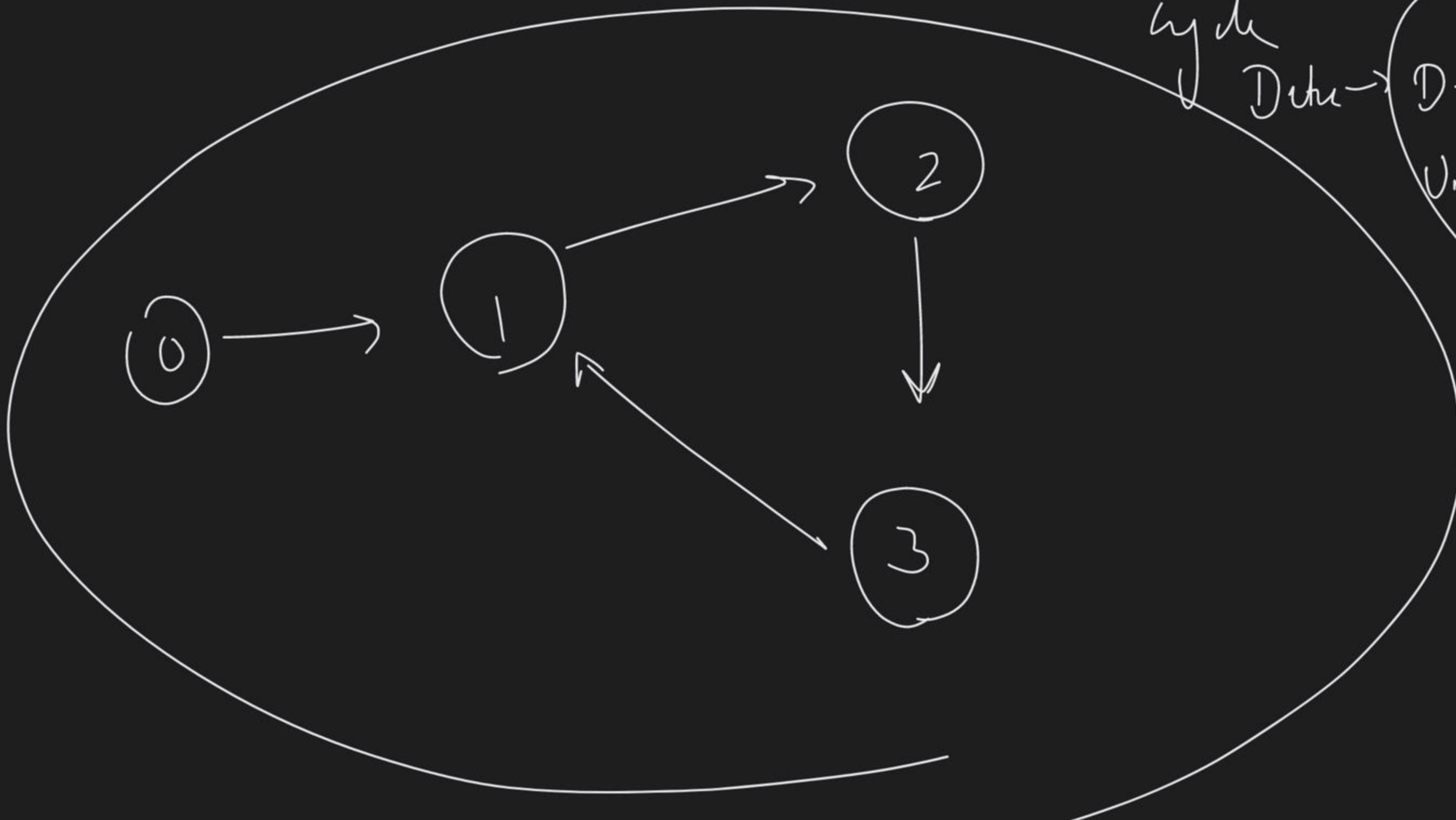
→ Invalid
T.S

E.L



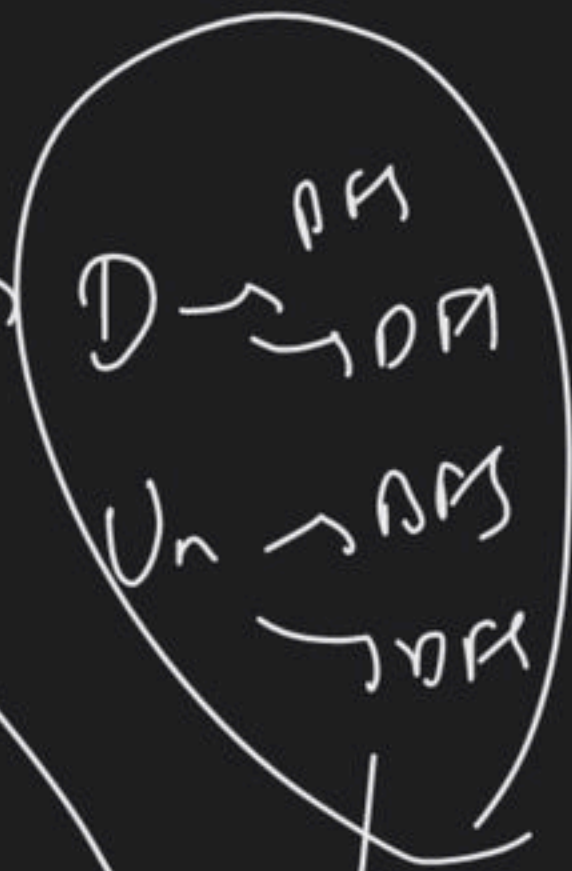




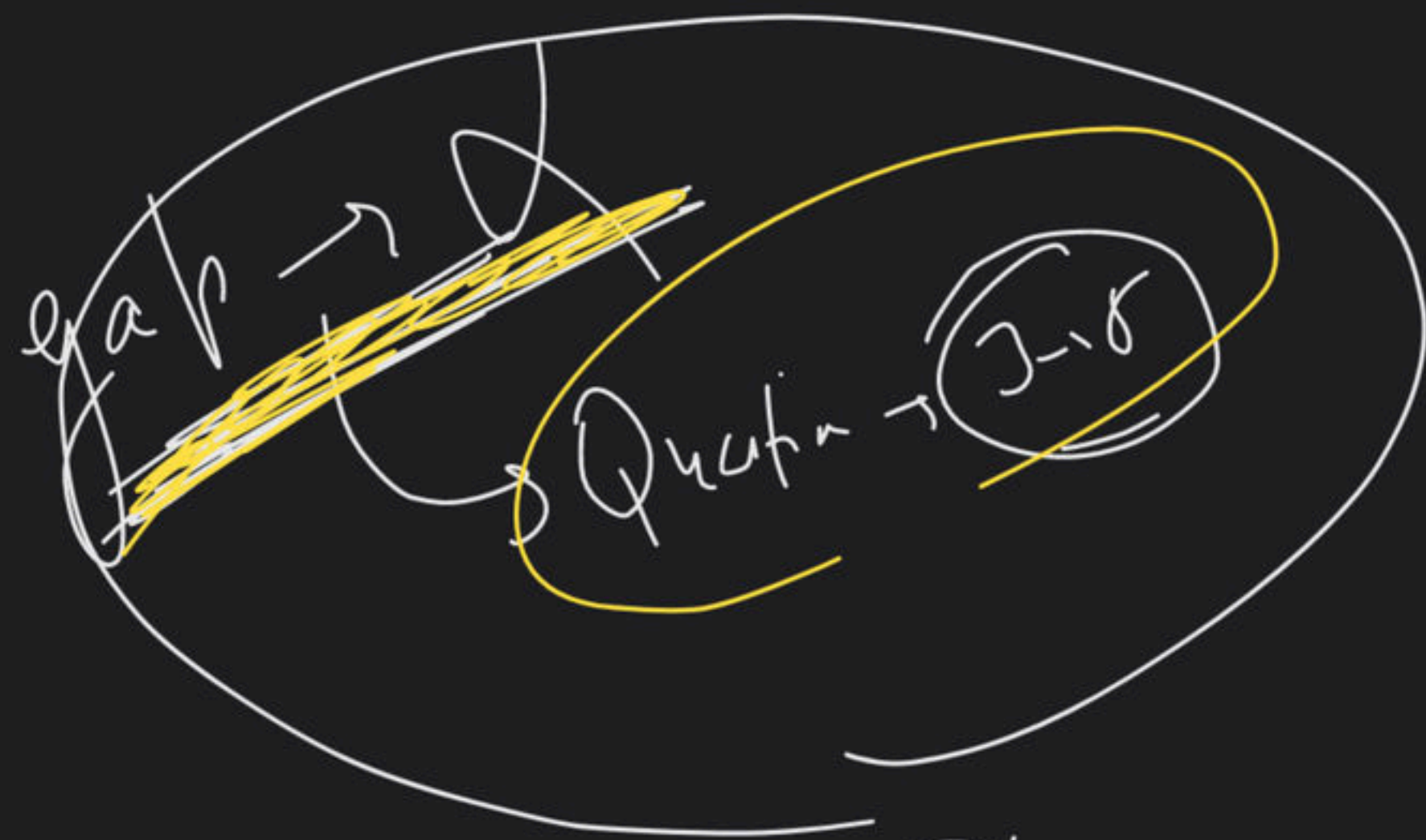


Lyde

Duke



Merek



Undirected \rightarrow BFS/DFS

same
logi

already visited
&
nbr \neq parent

Directed

DFS

visit & dfs visit

BFS

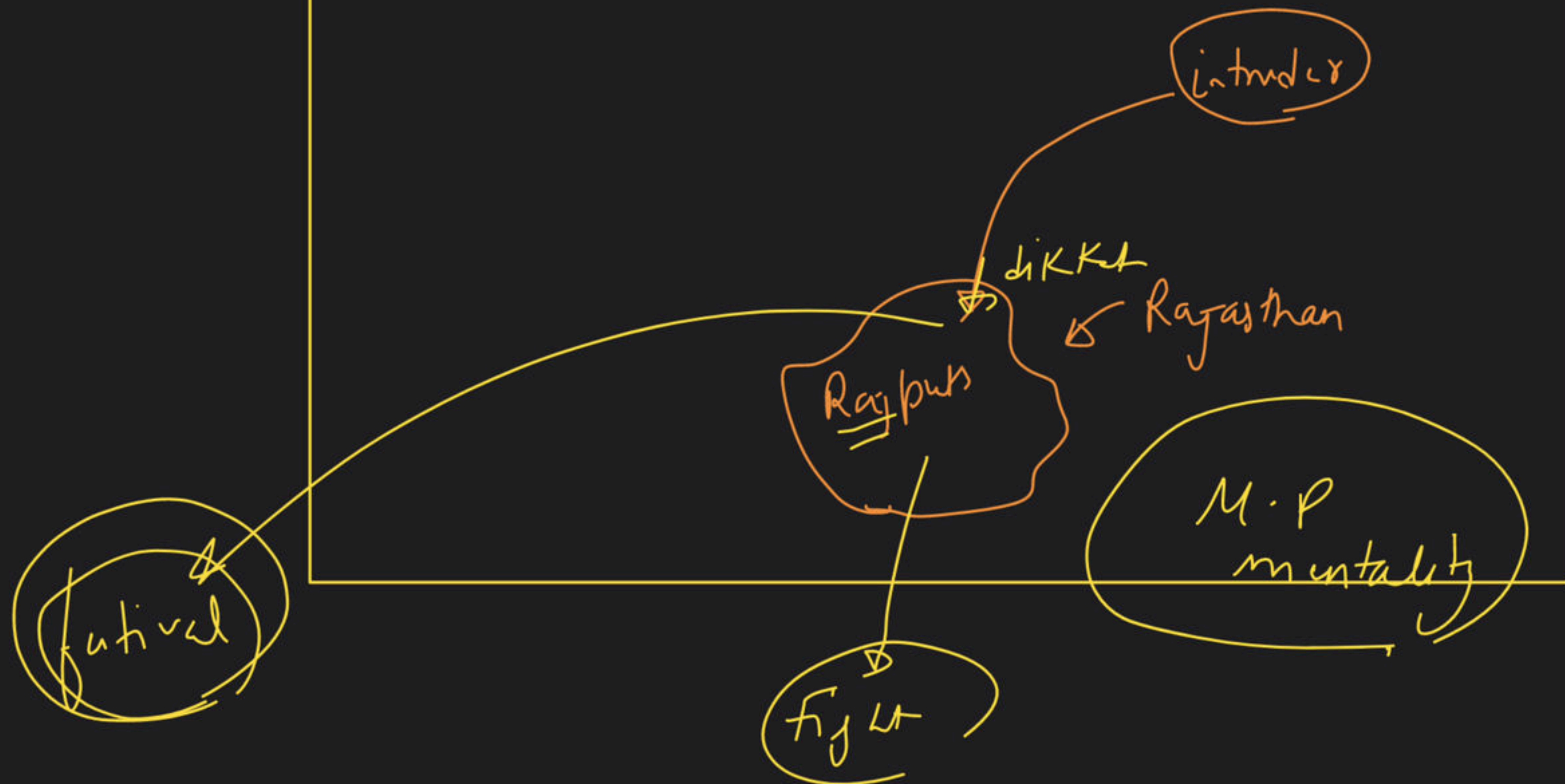
Invalid T-S

On-Campus

Index

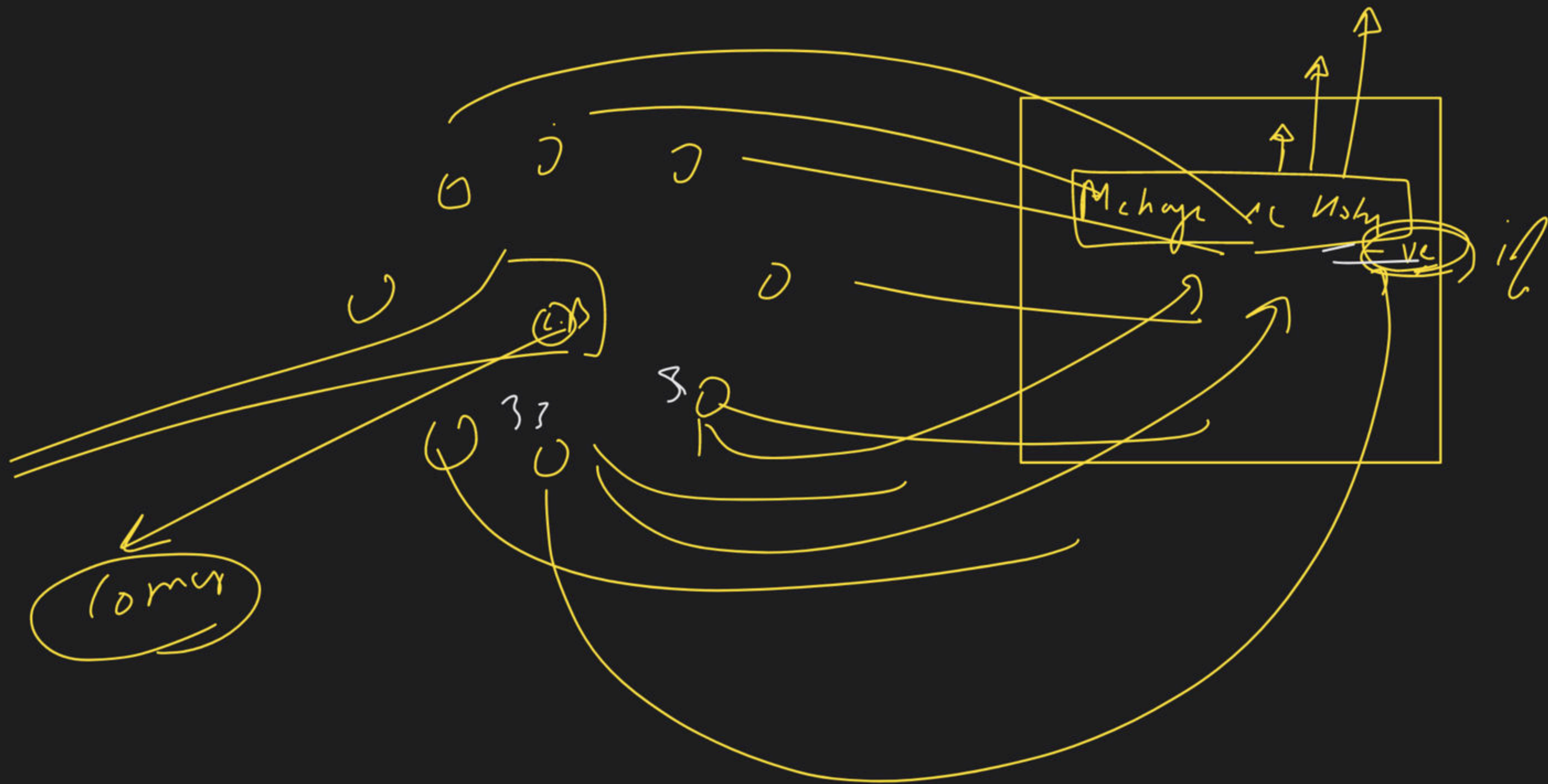
corner

History



Indic

31
52 Jid }



Shoot test

Dijkster