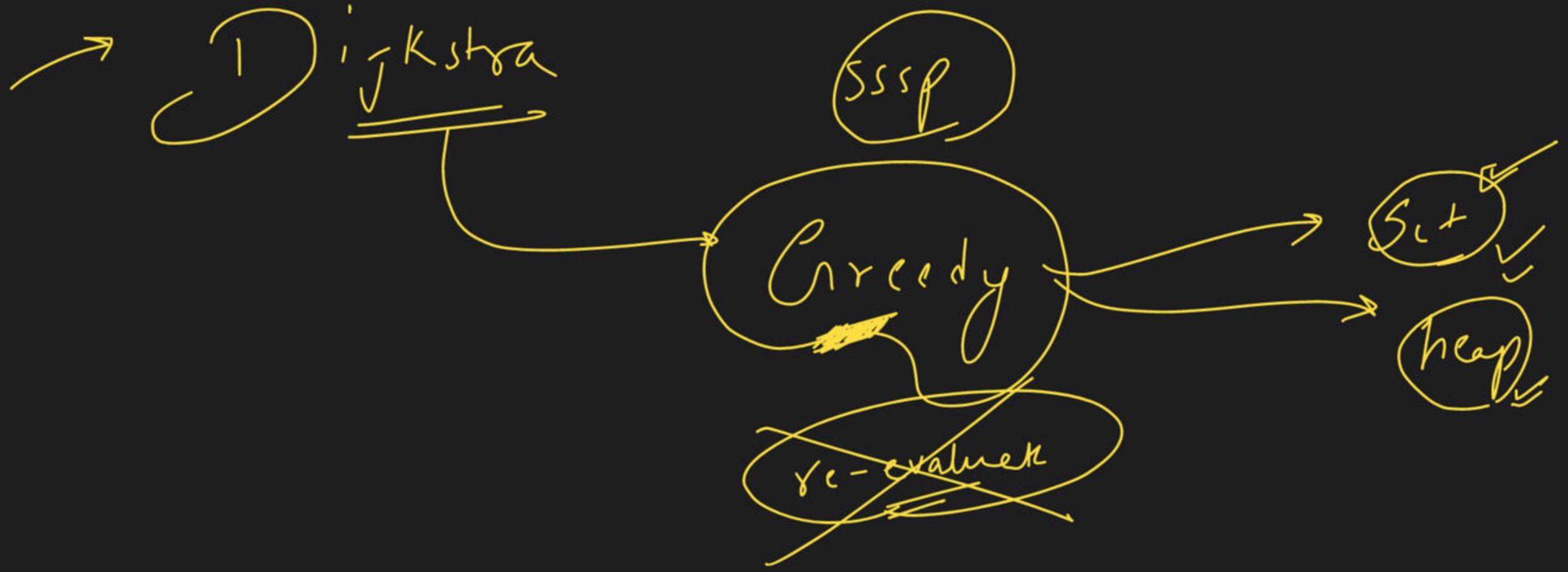
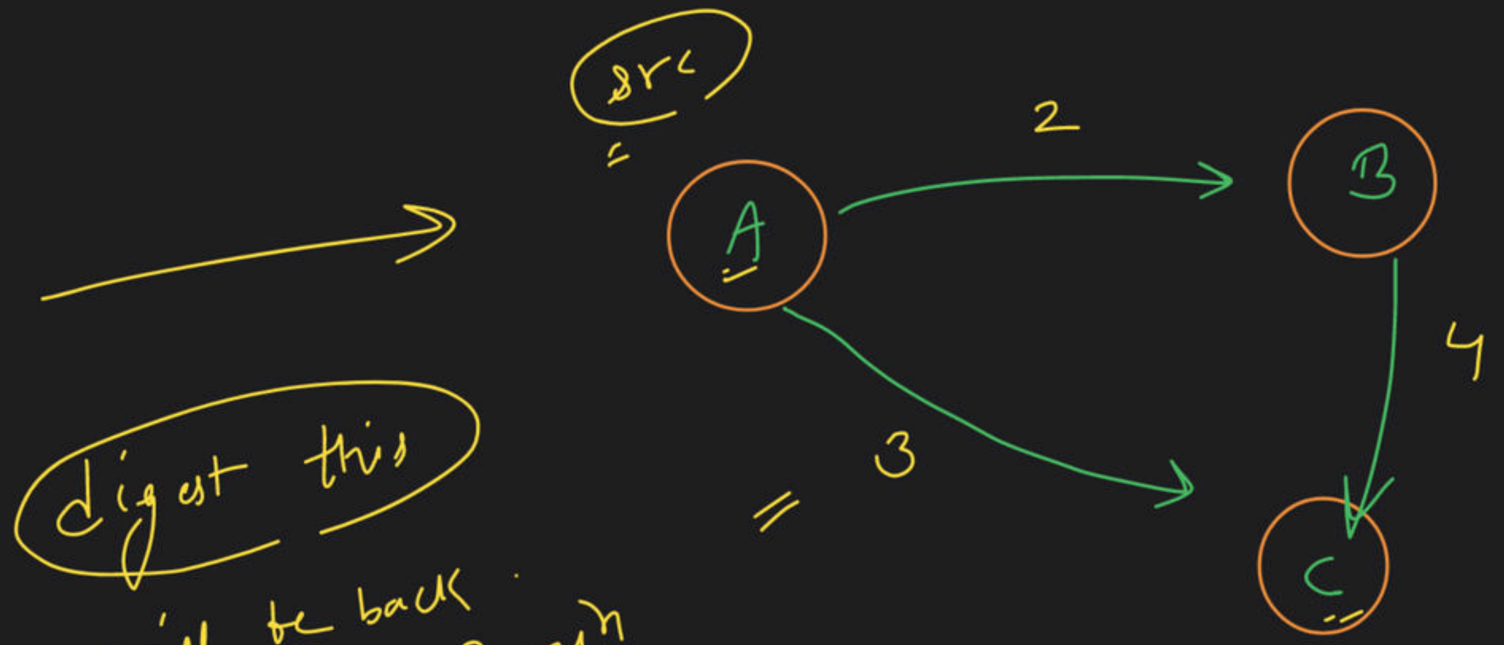
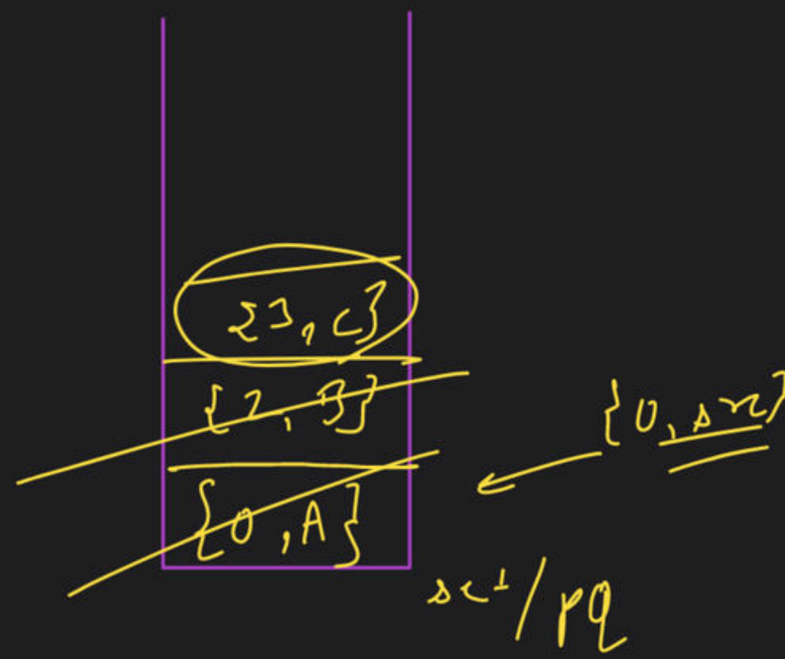
# Graph Class - 7 [ MEGA ]

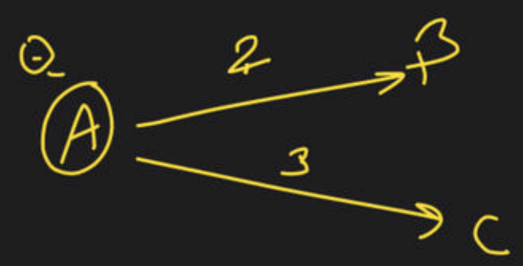
Special class

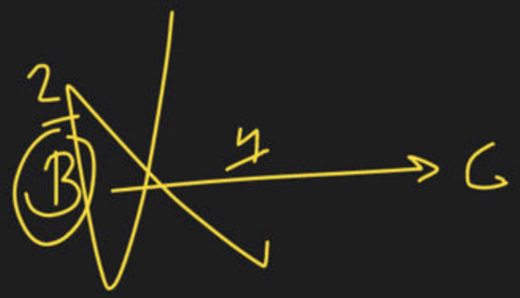
**Love Babbar** • Mar 8, 2024

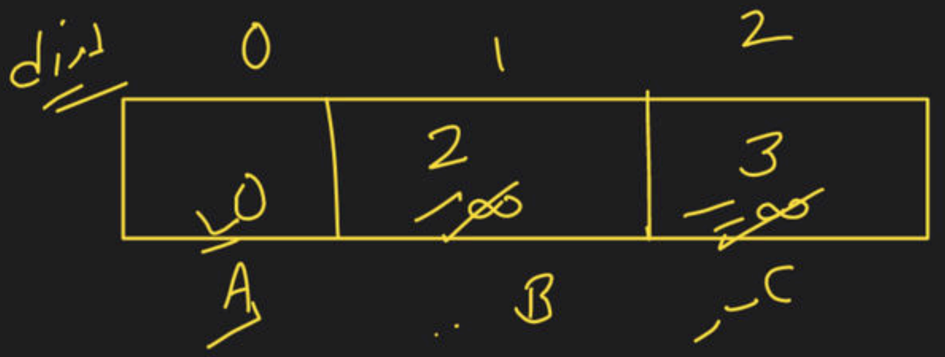

Dijkstra
SSSP
Greedy
Set
heap
re-evaluate


src
A
B
C
2
4
3
digest this
will be back
in 2 min

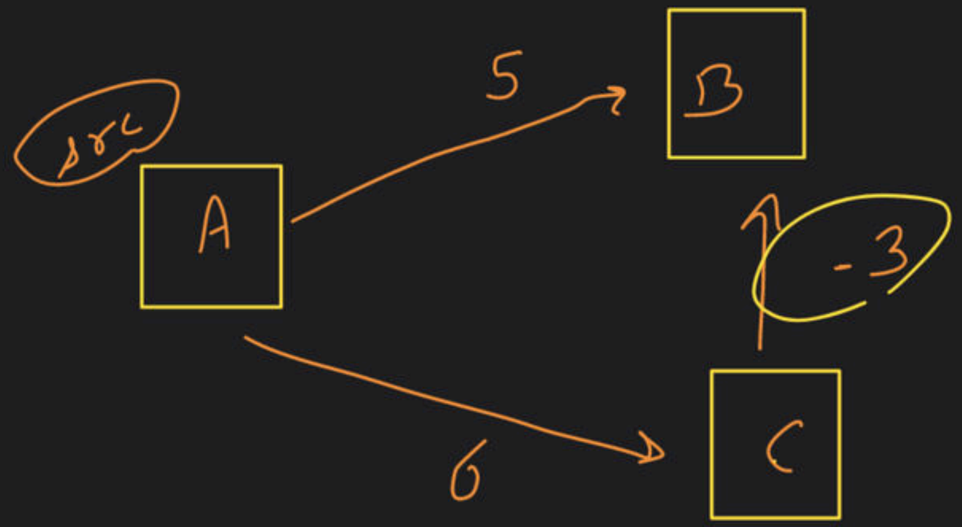

{3, C}
{2, B}
{0, A}
{0, src}
set / pq

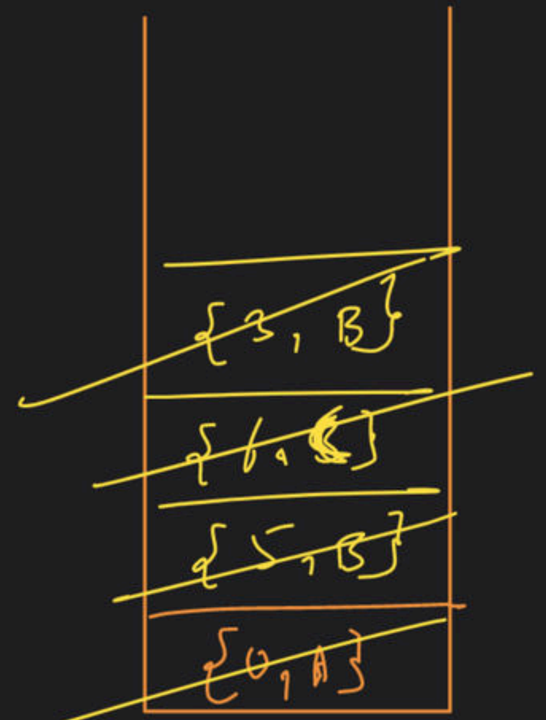

A
2
B
3
C


B
2
4
C

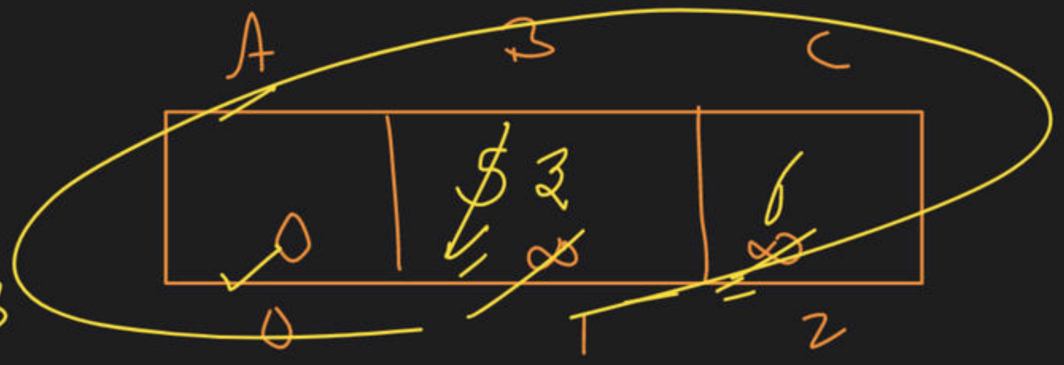

dist
0
1
2
0
2
3
A
B
C

-ve weights :-



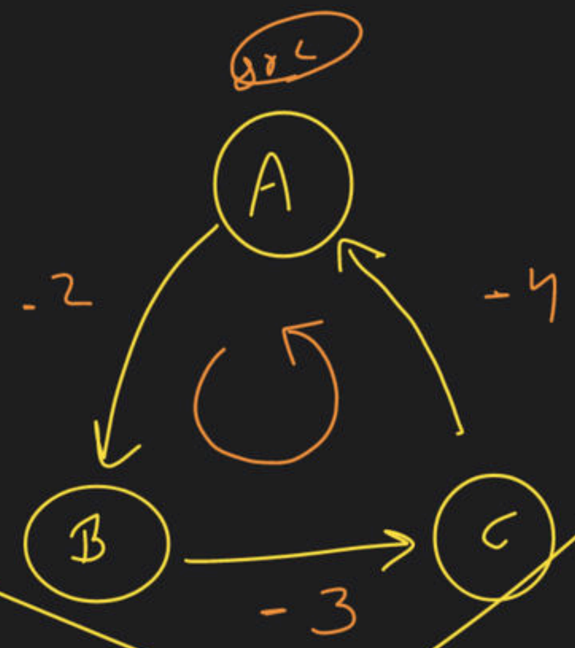

set/pq



-ve cycle

~~Dij~~

fore ✗




~~{-11, 1}~~

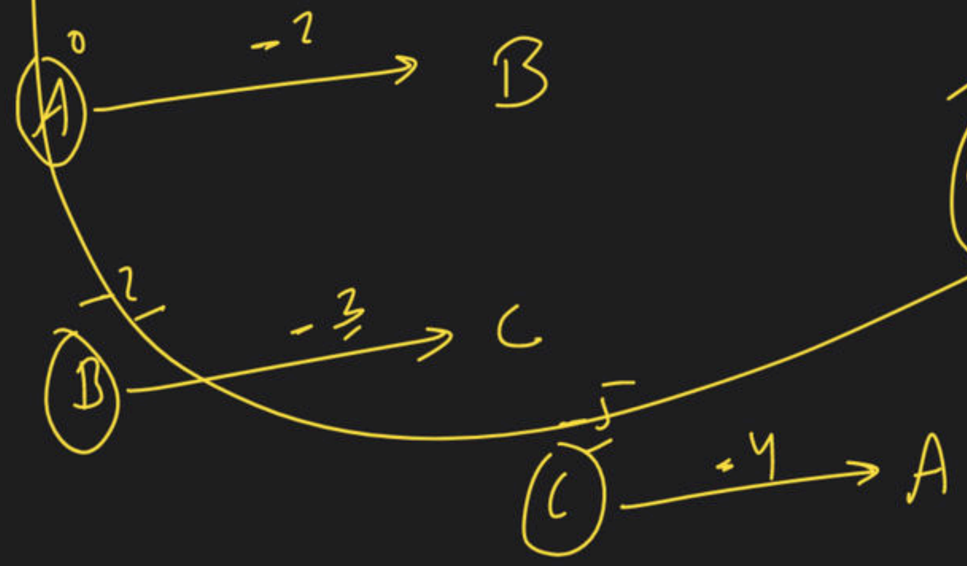
~~{-9, A}~~

~~{-1, C}~~

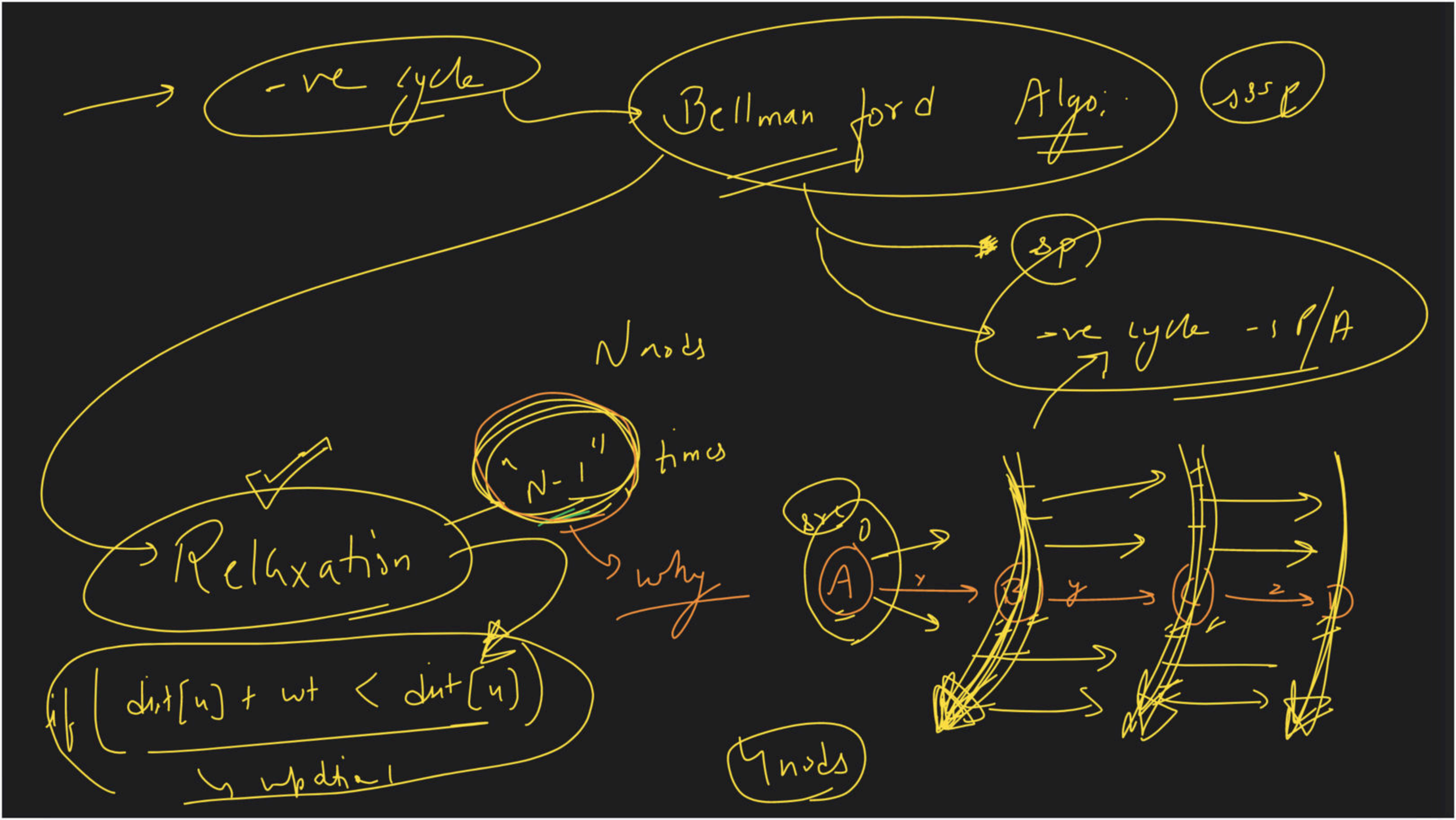
~~{-2, B}~~

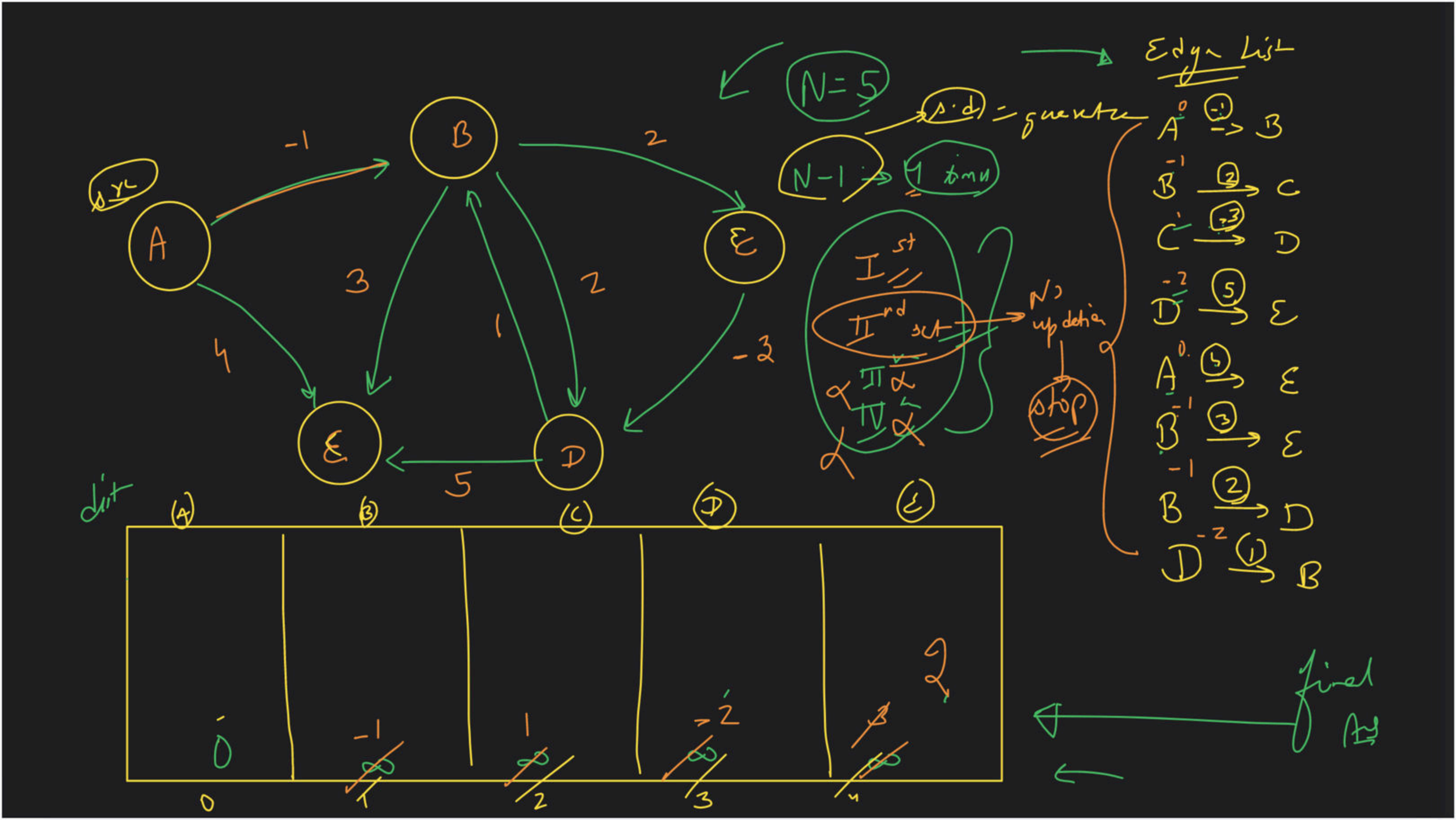
~~{0, A}~~

act/PQ

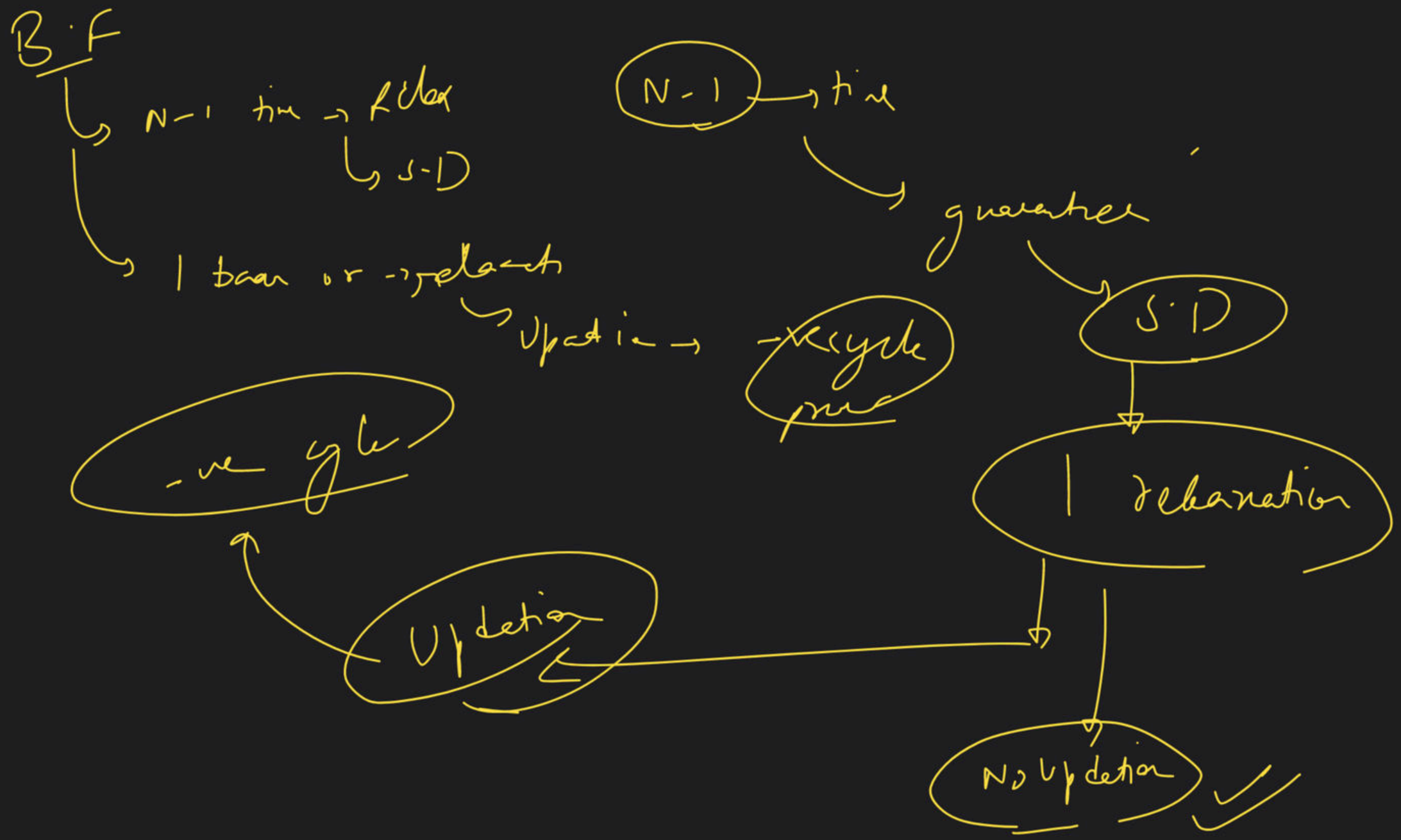


| A | B | C |
|---|---|---|
| -9 ~~0~~ | ~~2~~ -11 ~~∞~~ | -5 ~~∞~~ |
| 0 | 1 | 2 |


-ve cycle
Bellman ford Algo:
SSSP
SP
-ve cycle - SP/A
N nods
N-1
times
why
Relaxation
if ( dist[u] + wt < dist(v) )
update
4 nods
src
A
x
y
z



N=5
s.d = quantity
N-1 → 4 times
Edge List
A 0 -1 → B
B -1 2 → C
C 1 3 → D
D -2 5 → E
A 0 4 → E
B -1 3 → E
B -1 2 → D
D -2 1 → B
I st
II nd set
III
IV
No updation
stop
A
B
C
D
E
-1
2
3
1
2
4
-3
5
dist
0
-1
1
-2
2
final



B.F

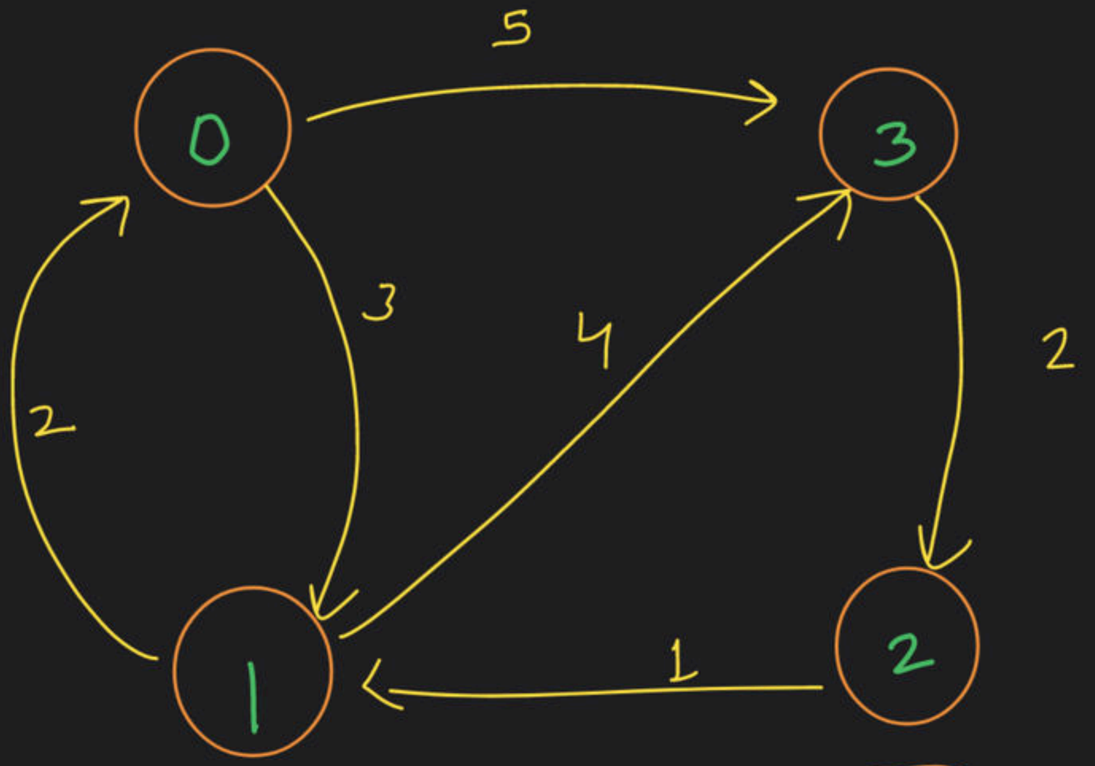
- N-1 time → Relax
  - S-D
- 1 bar or → relaxation
  - Updation → -ve cycle prev

N-1 → time → guarantee → S.D → 1 relaxation → No updation ✓

1 relaxation → Updation → -ve cycle

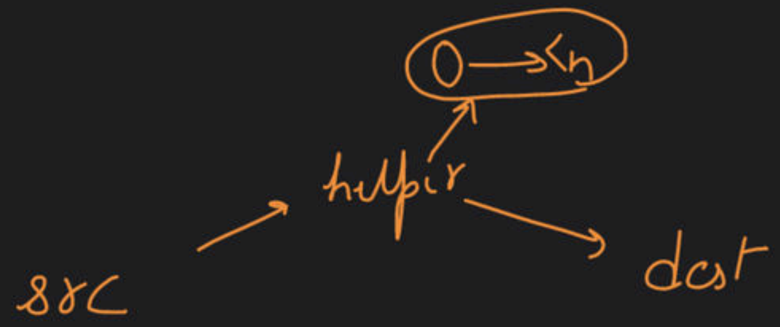
Floyd warshall :)

mssp




dist

| | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | 0 | ∞ | ∞ | ∞ |
| 1 | ∞ | 0 | ∞ | ∞ |
| 2 | ∞ | ∞ | 0 | ∞ |
| 3 | ∞ | ∞ | ∞ | 0 |




initial stuff → src → src → 0

dist[src][dst]

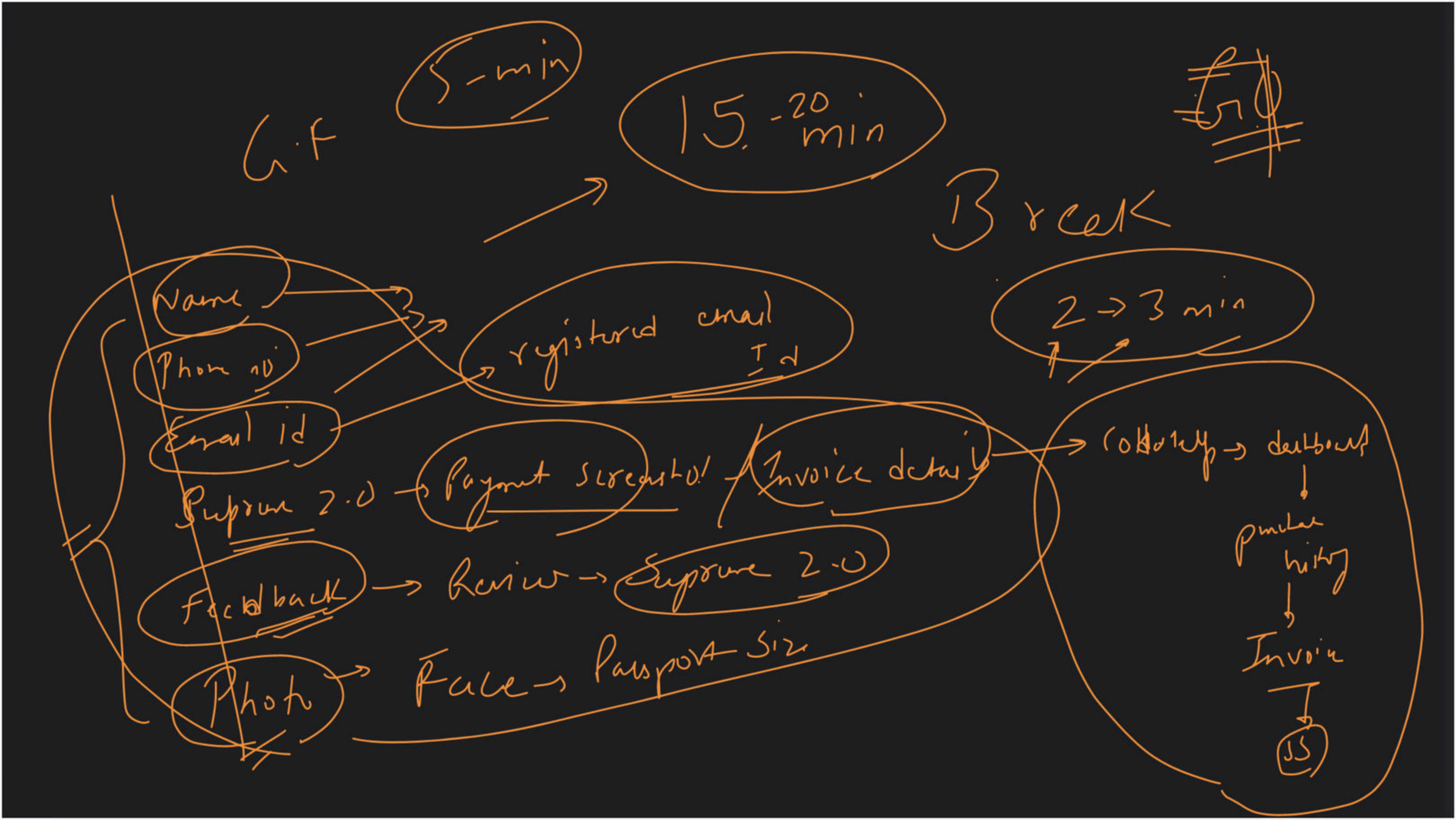
(dist[src][0] + dist[0][dst])

(dist[src][1] + dist[1][dst])

(dist[src][2] + dist[2][dst])

(dist[src][3] + dist[3][dst])

min



G.F

5-min

15-20 min

Break

2 → 3 min

Name

Phone no

Email id

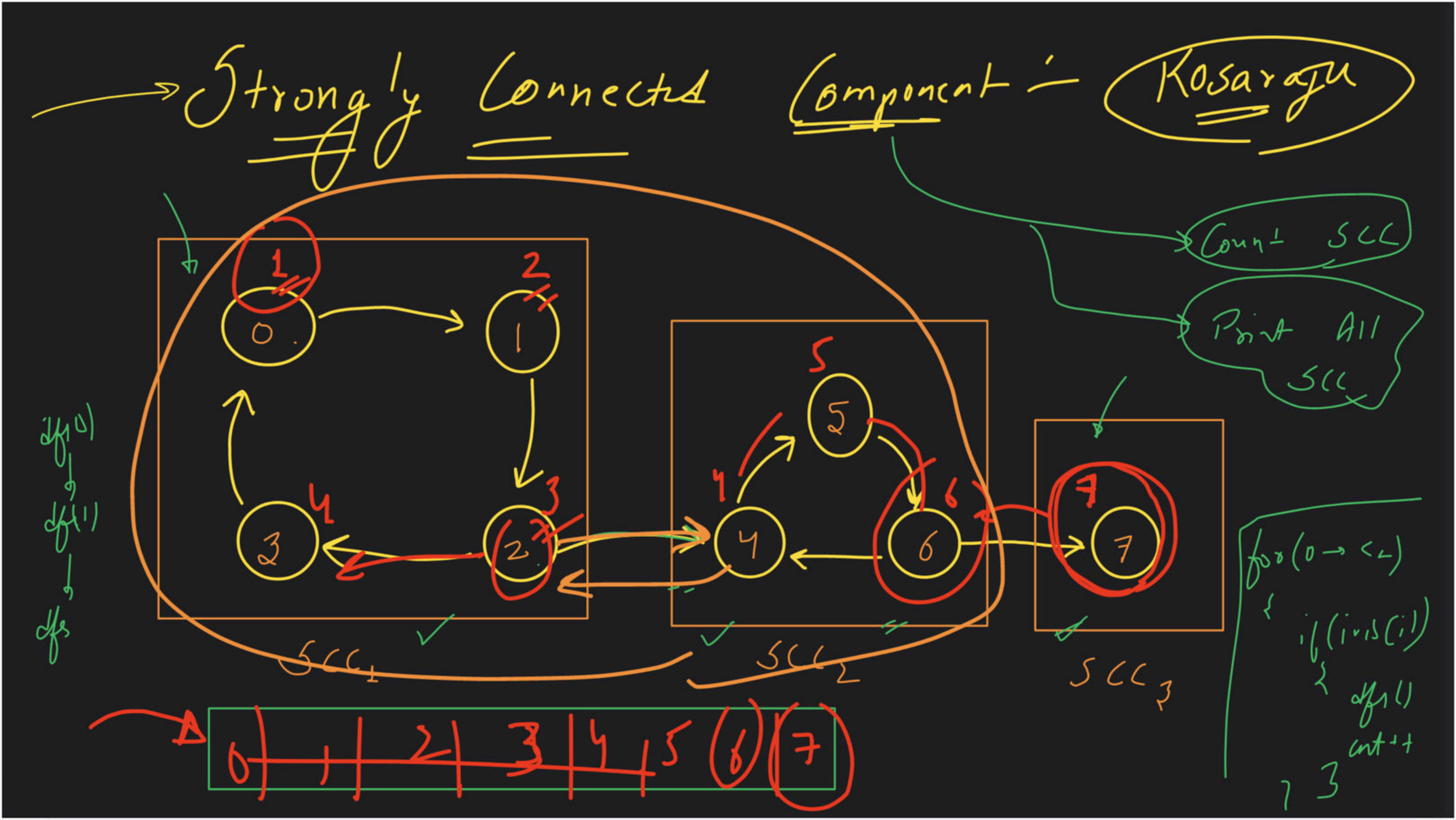
registered email Id

Suprem 2.0 → Payment screenshot / Invoice details → collateral → dashboard → purchase history → Invoice → SS

Feedback → Review → Suprem 2.0

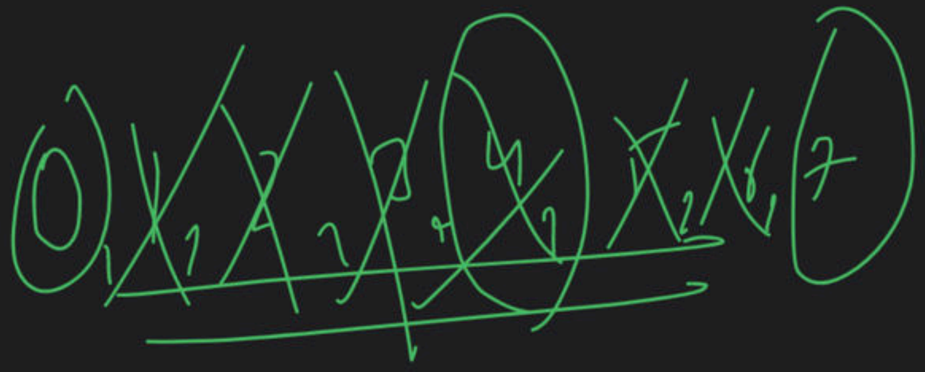
Photo → Face → Passport Size

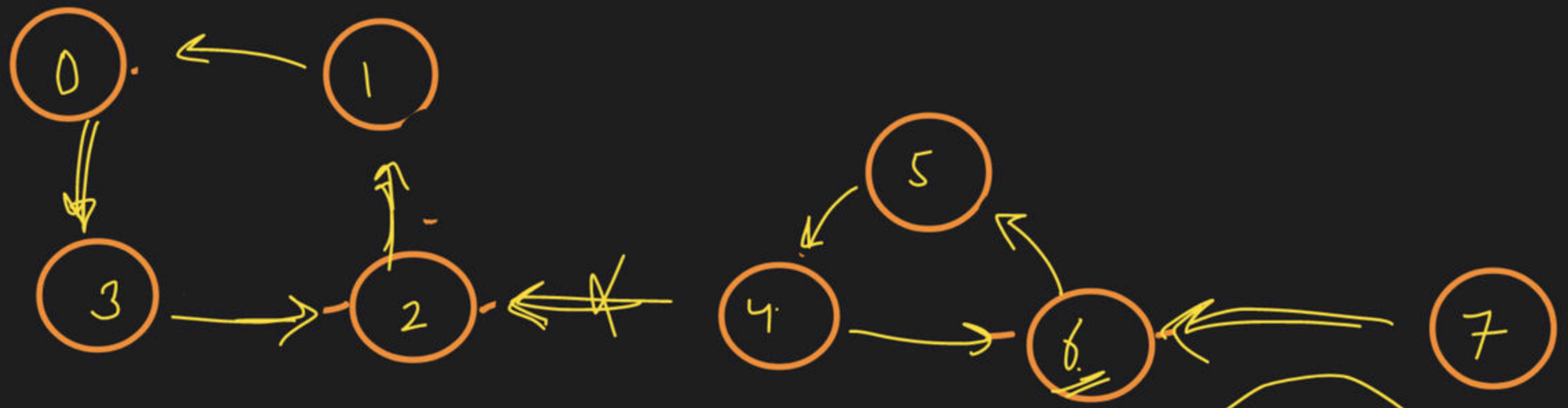
# Strongly Connected Component :- Kosaraju

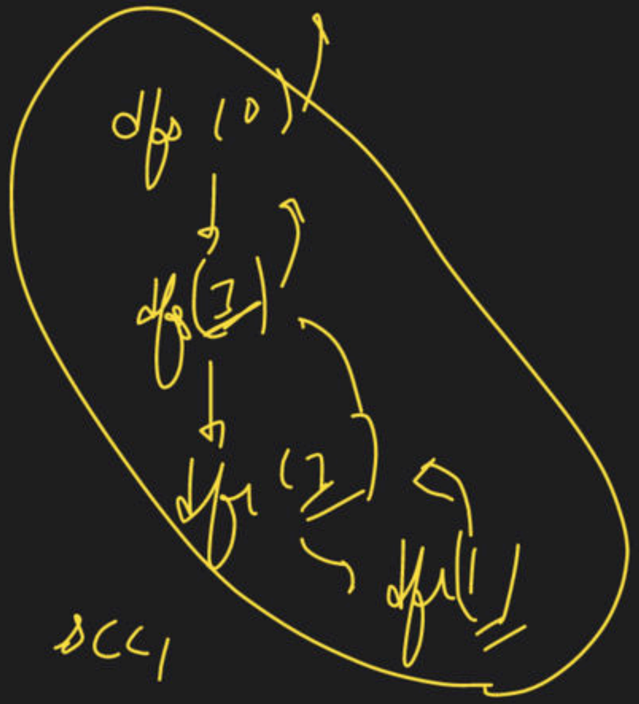


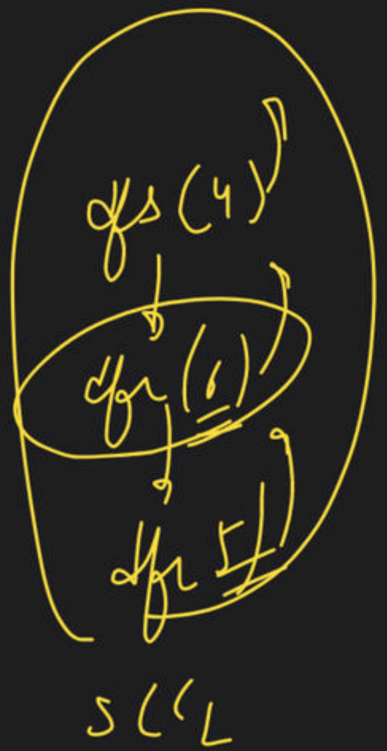
→ Kosaraju ⟶ 2 tools ⟶ Edge Reversal

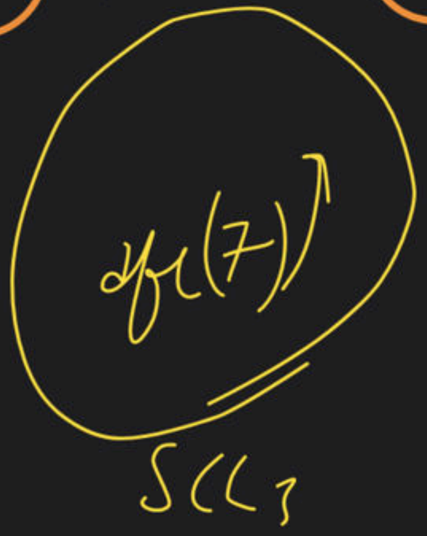
Dfs → count

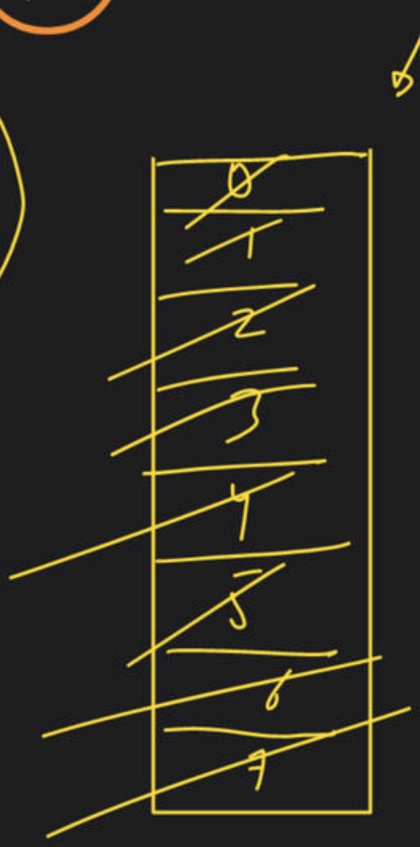


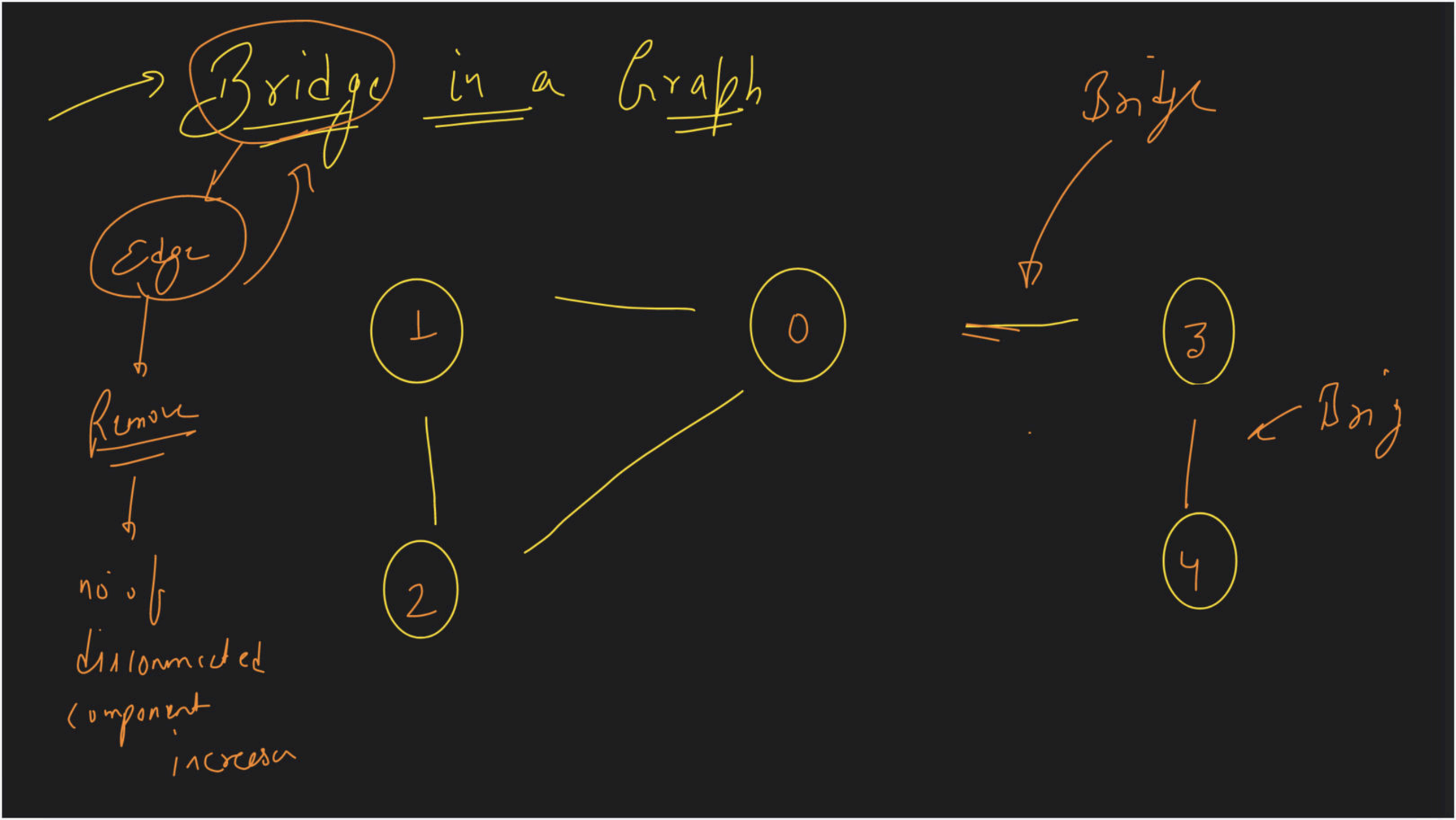

0
1
3
2
5
4
6
7

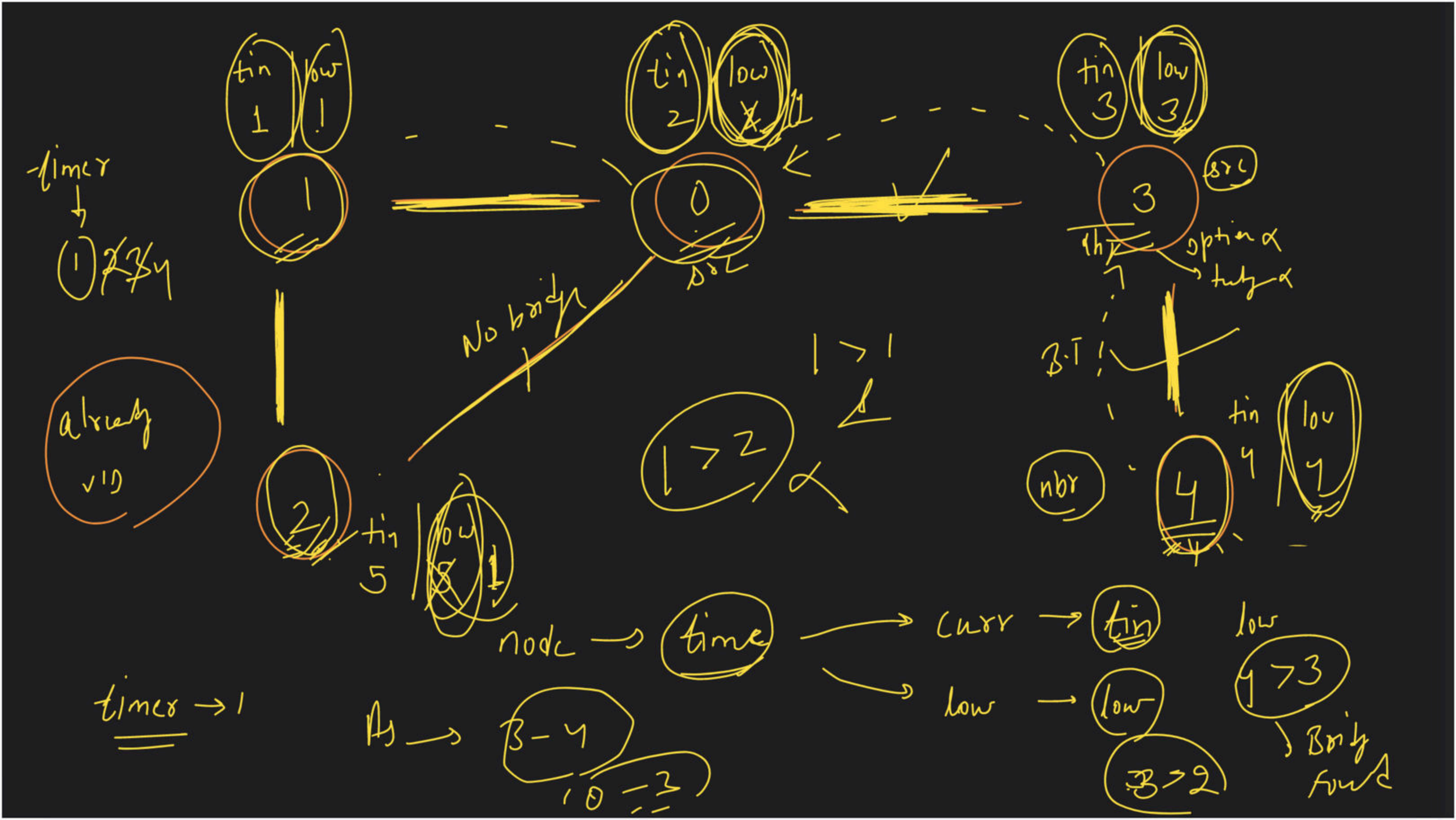

dfs(0)
dfs(3)
dfs(2)
dfs(1)
SCC1

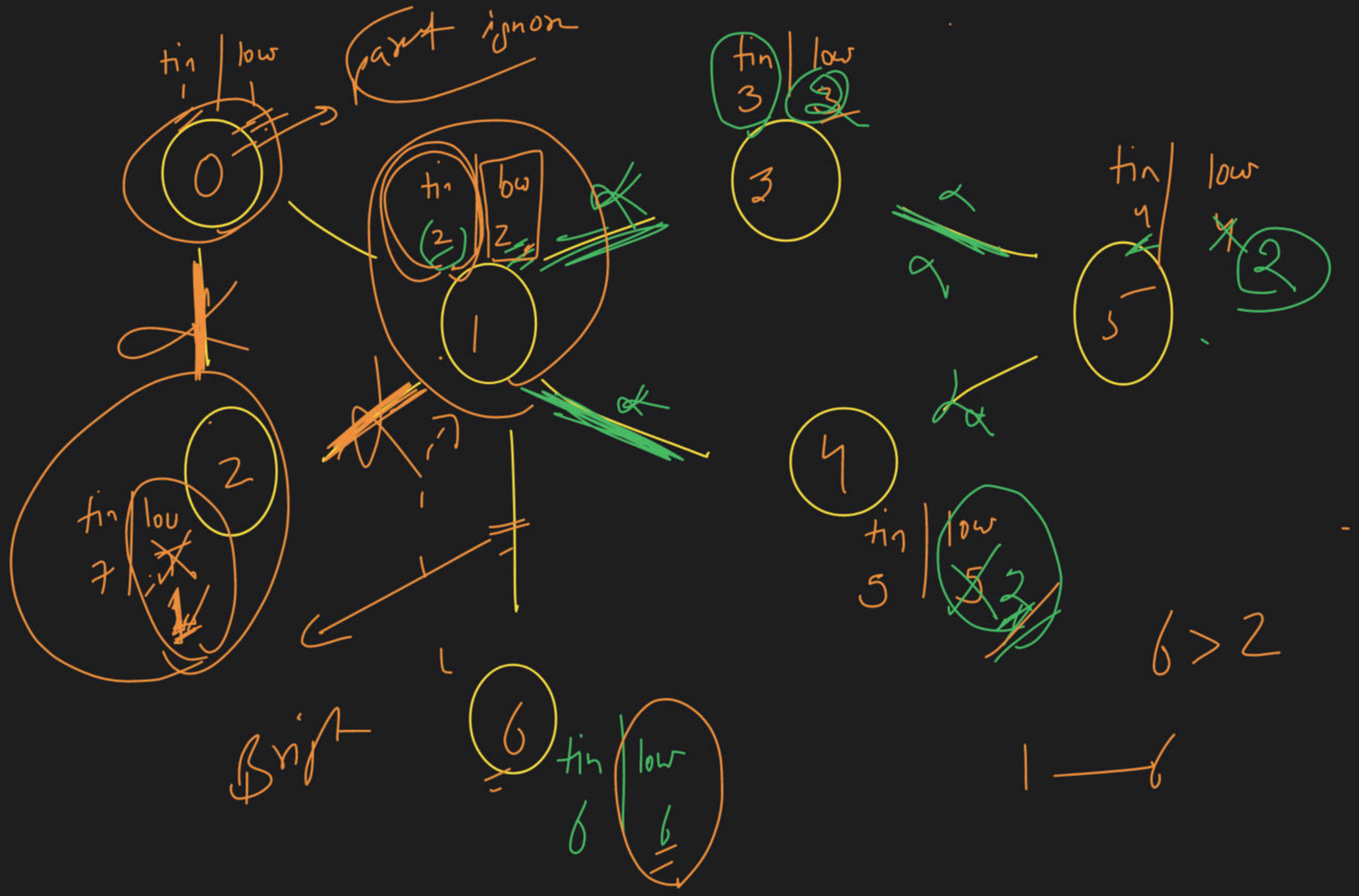

dfs(4)
dfs(6)
dfs(5)
SCC2


dfs(7)
SCC3


stack
0
1
2
3
4
5
6
7


Bridge in a Graph
Edge
Remove
no of disconnected component increases
1
0
2
3
4
Bridge
Bridge


timer
1 2 3 4
tin 1
low 1
1
tin 2
low 2
0
src
tin 3
low 3
3
src
option α
tuty α
No bridge
1 > 1
1 > 2 α
B.T
already vid
2
tin 5
low 5
1
nbr
4
tin 4
low 4
node → time → curr → tin
low → low
low
4 > 3
Bridge found
3 > 2
timer → 1
As → 3 - 4
0 - 3



tin | low
parent ignore
0
tin | low
(2) 2
1
tin | low
3 3
3
tin | low
4 4 2
5
2
tin | low
7 7 1
4
tin | low
5 5 2
6 > 2
Bright
6
tin | low
6 6
1 — 6