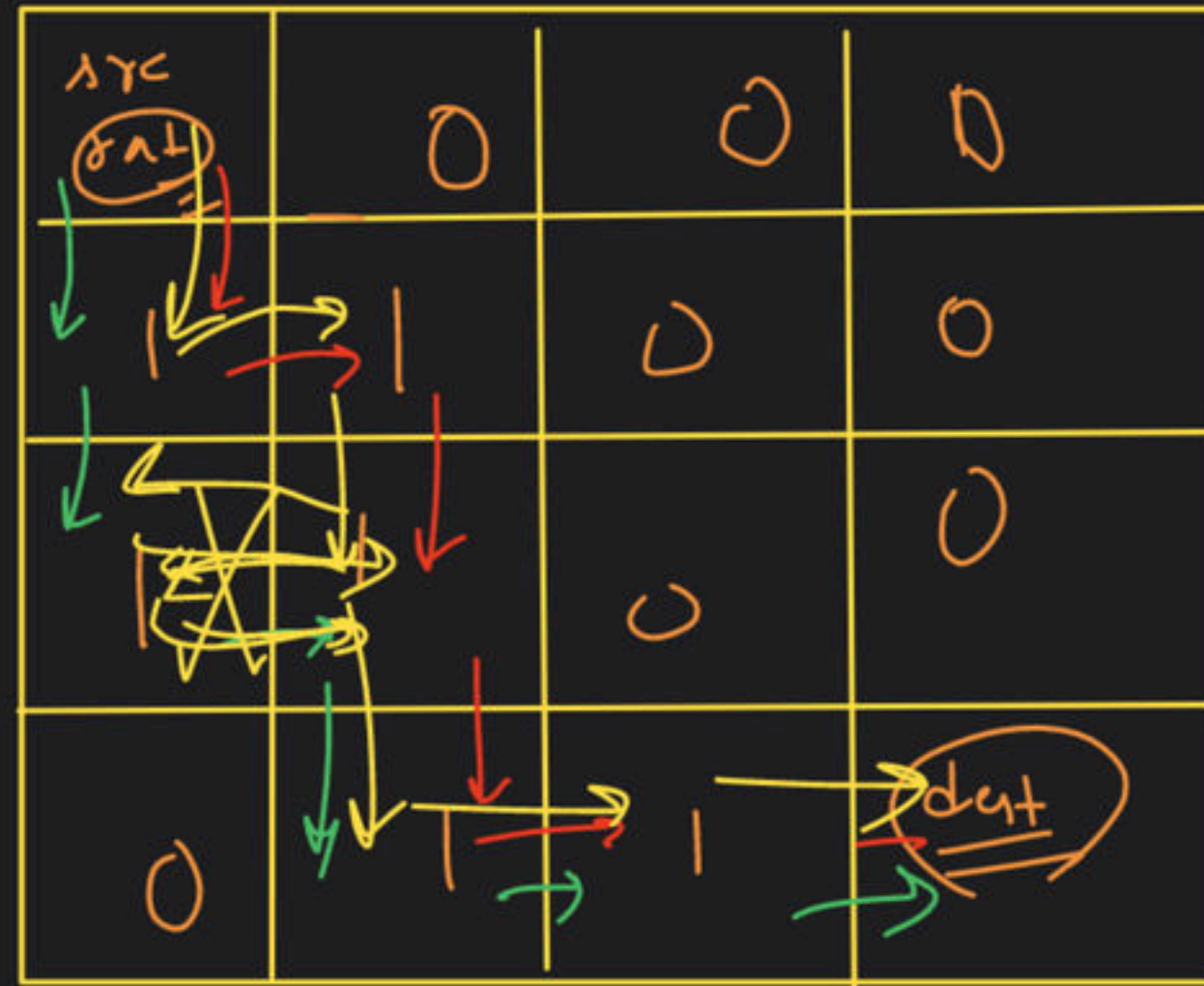


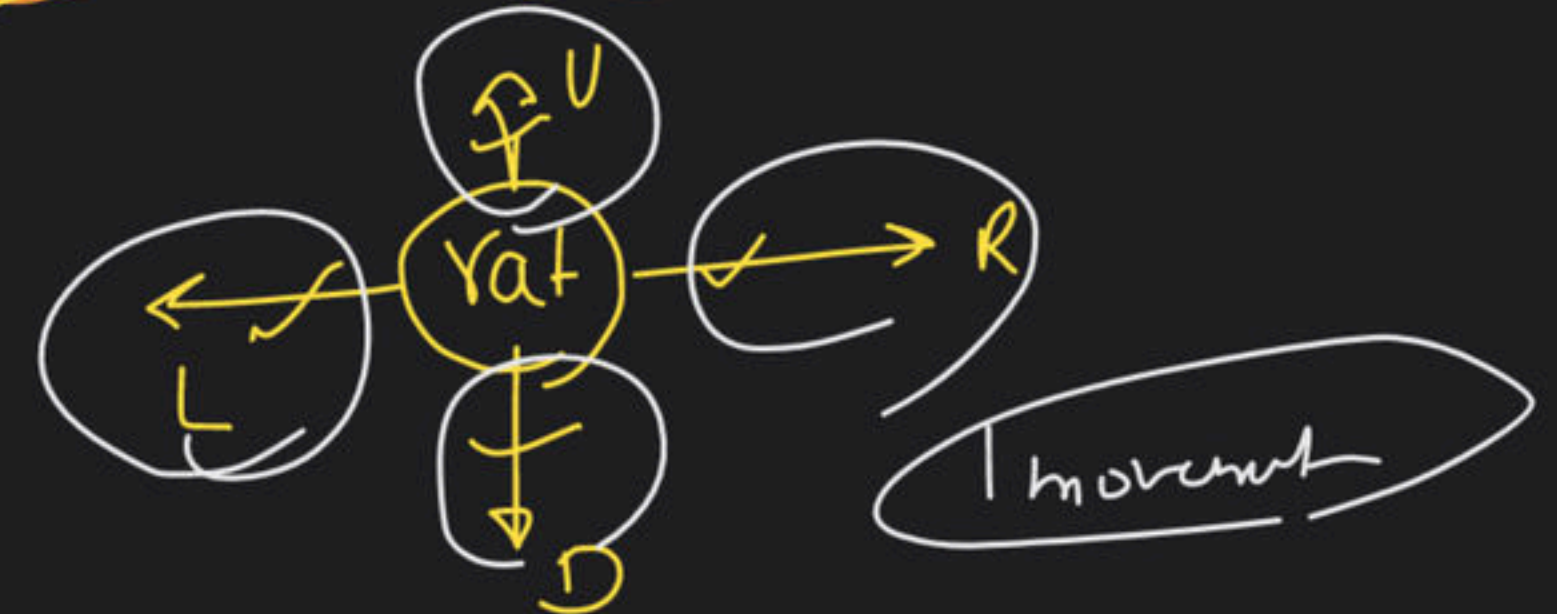
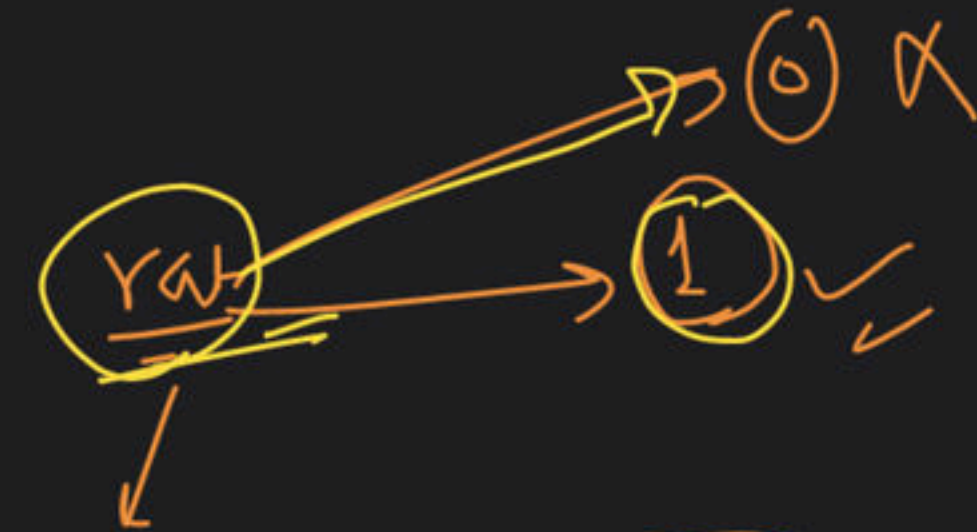
# DnC Level-3

Special class

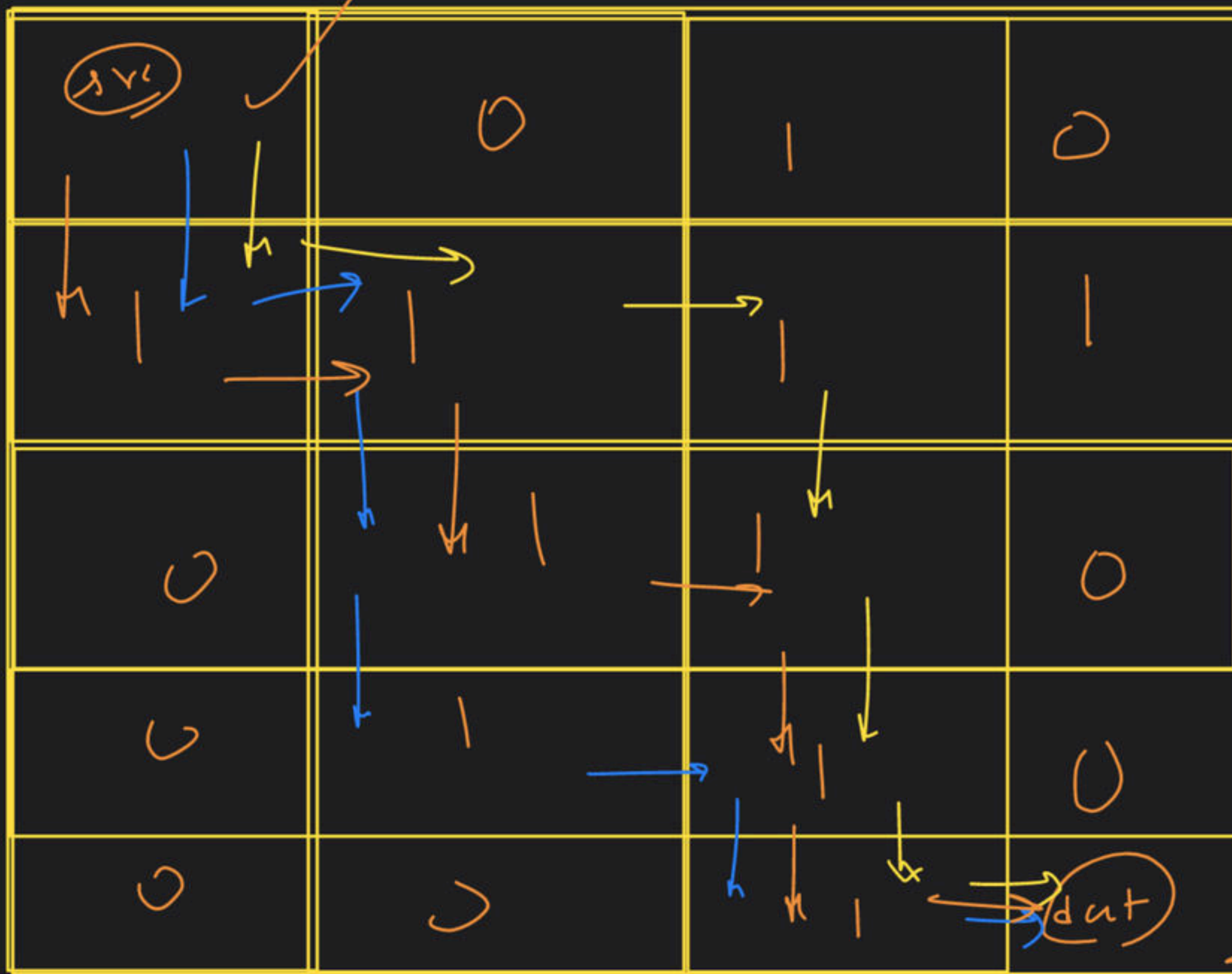
→ Rat in a maze:- find all solutions to reach destination



0 → Rasta blocked hai  
1 → Rasta Open hai



DDRRRR (in a green box)  
DRDDRR (in a red oval with double checkmarks)



all solution

↳ count?

↳ what?

2 min



0 1 2 3



→ Problem

$(0,0) \rightarrow \begin{matrix} \text{D} & | & \text{L} & | & \text{R} & | & \text{U} \\ \hline \uparrow & & \uparrow & & \uparrow & & \uparrow \end{matrix}$

$$(1, 0) \rightarrow \cancel{D} \cancel{L} \underline{K} \underline{V}$$

$(1,1) \rightarrow \cancel{D} | L | R | U$

$$(z_{11}) \rightarrow \cancel{D} | L | R | v$$
$$(3, 1) \rightarrow \cancel{X} \mid \cancel{X} \mid R \mid U$$

$(3, 2) \rightarrow \cancel{D} \cancel{L} R V$

$$\cancel{D} | \cancel{V} | R | U$$

English loop

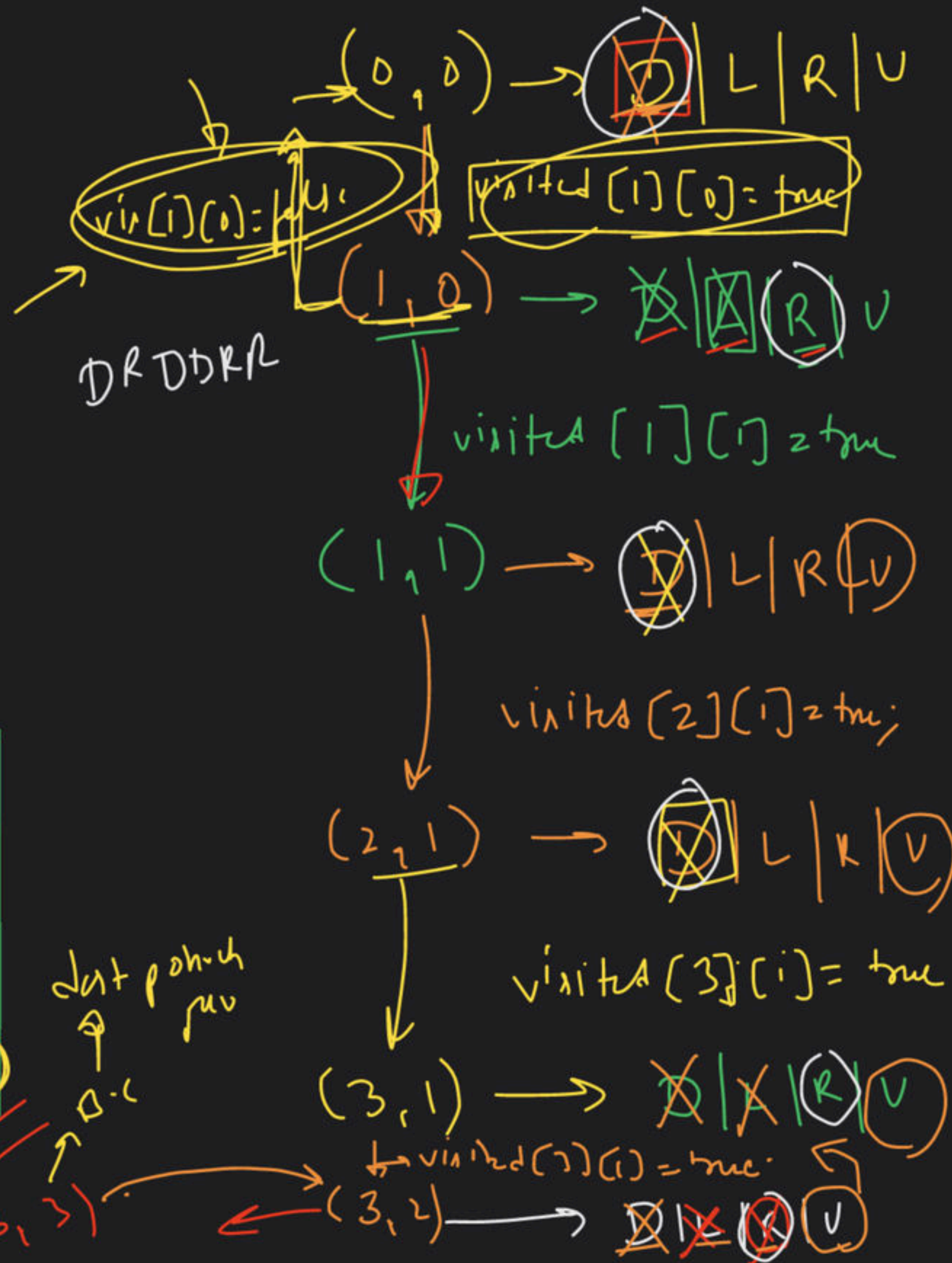
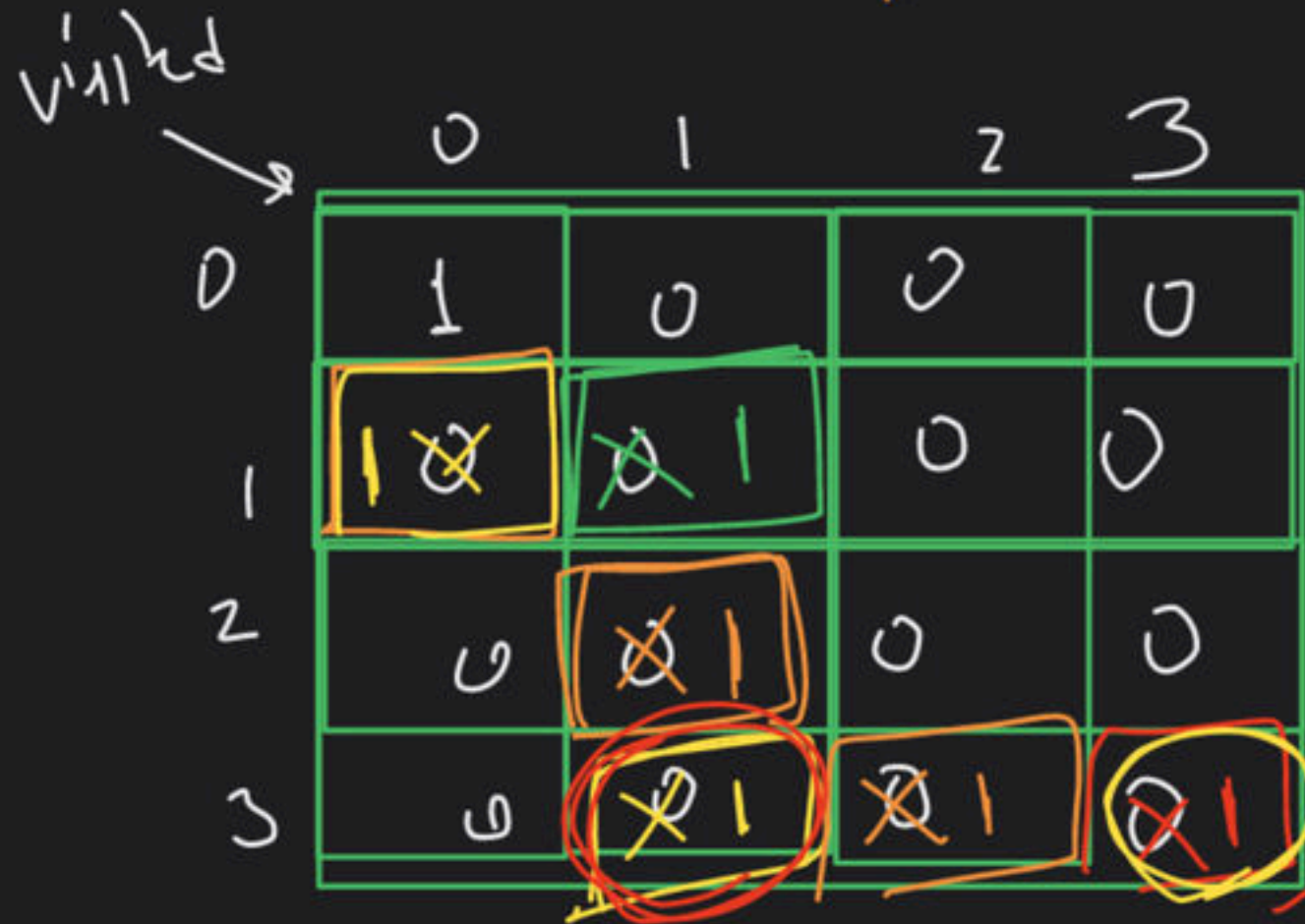
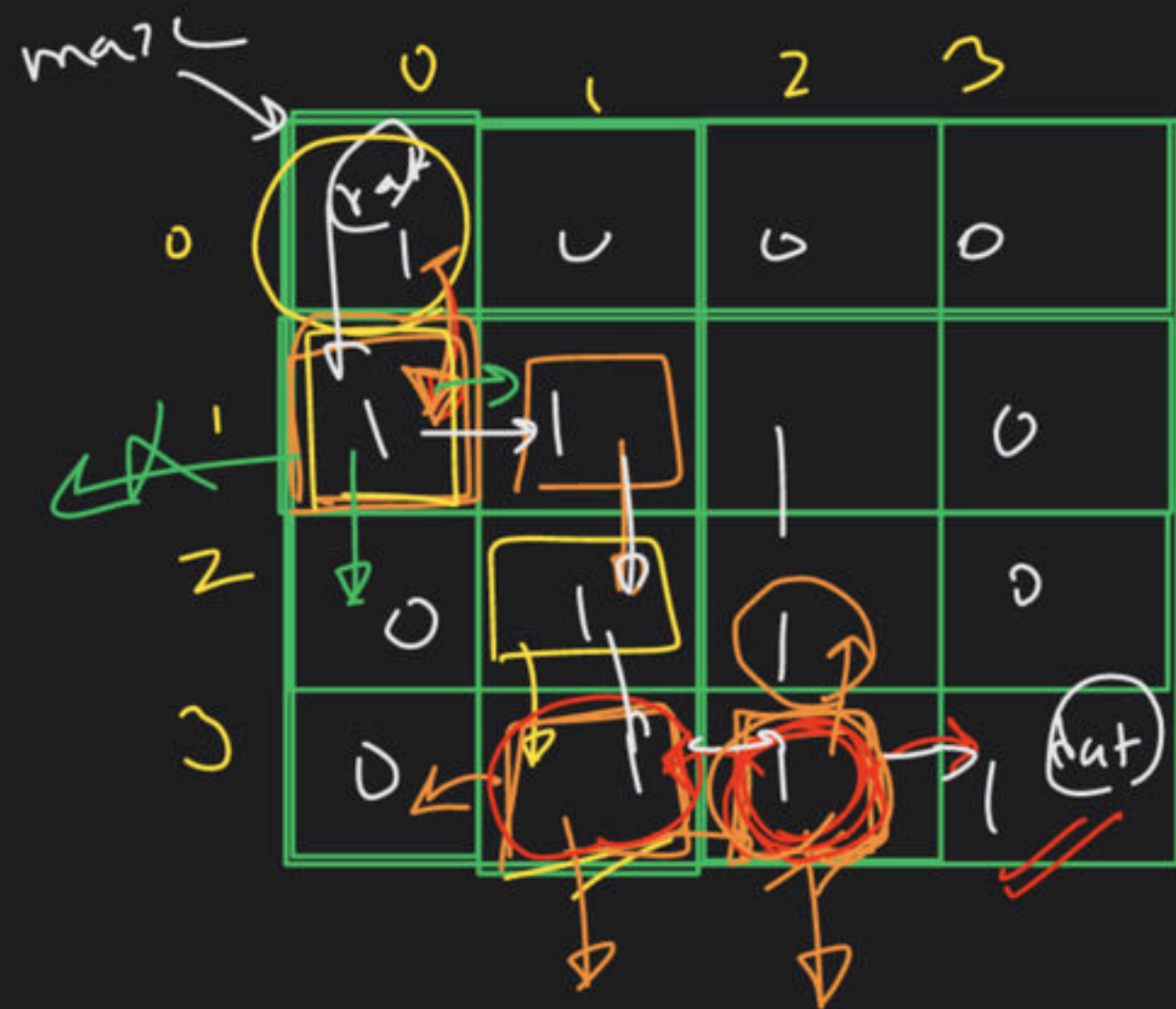
$(3, 2)$

$$(3, 1)$$
$$\begin{pmatrix} 1 \\ 3 \\ 2 \end{pmatrix}$$
$$(3.1)$$
 $(3, 2)$ 

← 3

$$\leftarrow (3, 2)$$
$$(3, 1)$$

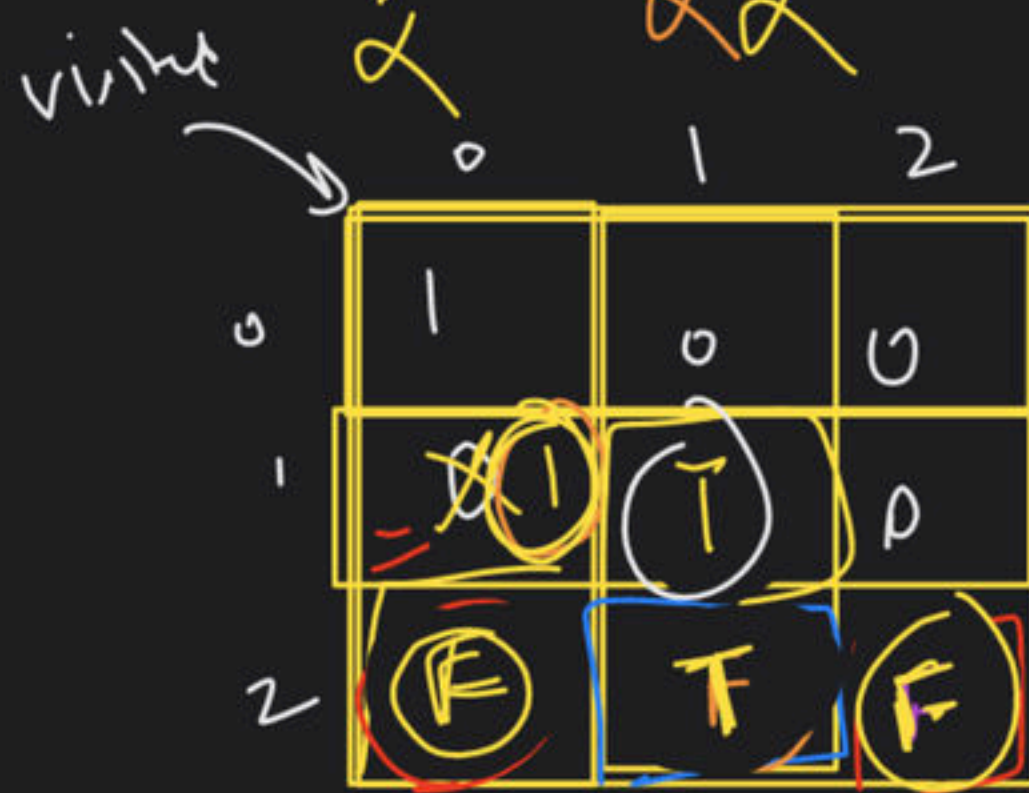
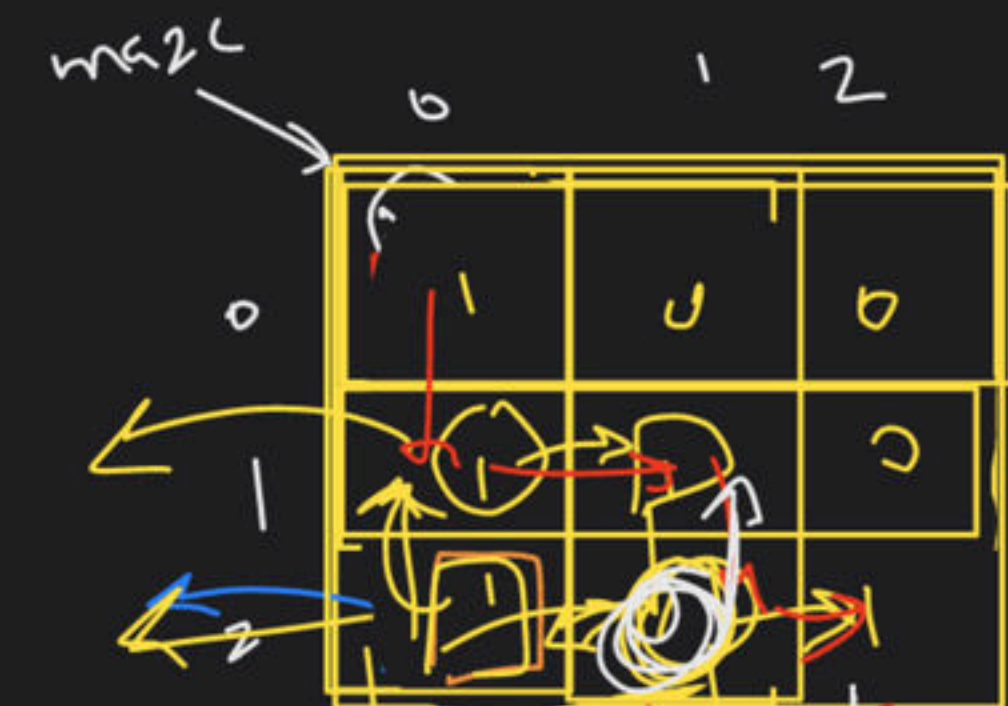




- Safe
- index inside array
  - 1
  - Not visited







$(0,0) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$

$\text{vis}[0][0] = \text{true}$

$(1,0) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$

$\text{vis}[1][0] = \text{true}$

$\text{vis}[2][0] = \text{false}$

$(2,0) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$

$\text{vis}[2][0] = \text{false}$

$\text{vis}[2][0] = \text{true}$

$(2,1) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$

$\text{vis}[2][1] = \text{false}$

$\text{vis}[2][1] = \text{true}$

$(2,2) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$

$(1,1) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$

□

why are we backtracking

D R D R

$(1,1) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$

$(2,1) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$

$(2,0) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$

$(2,2) \rightarrow \text{D} | \text{L} | \text{R} | \text{U}$



$(0,0)$

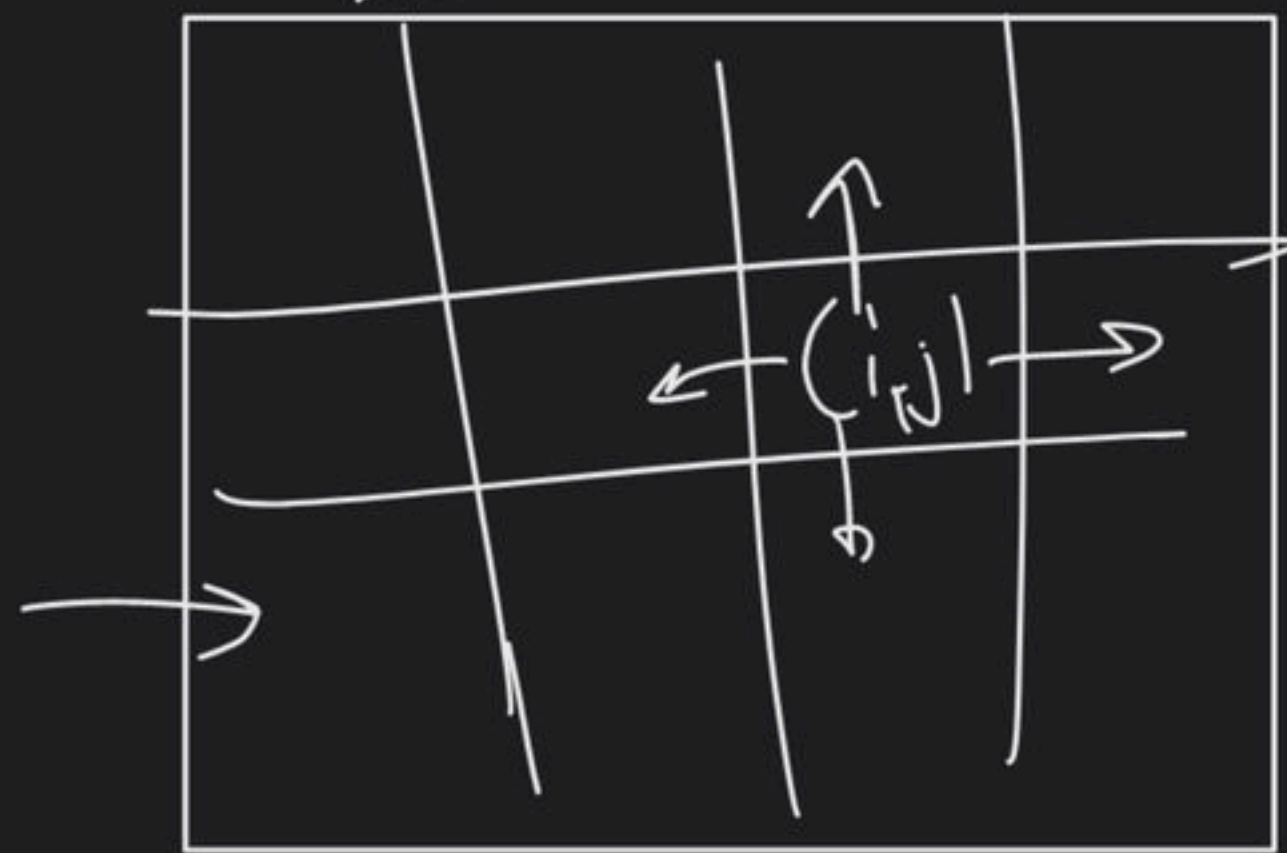
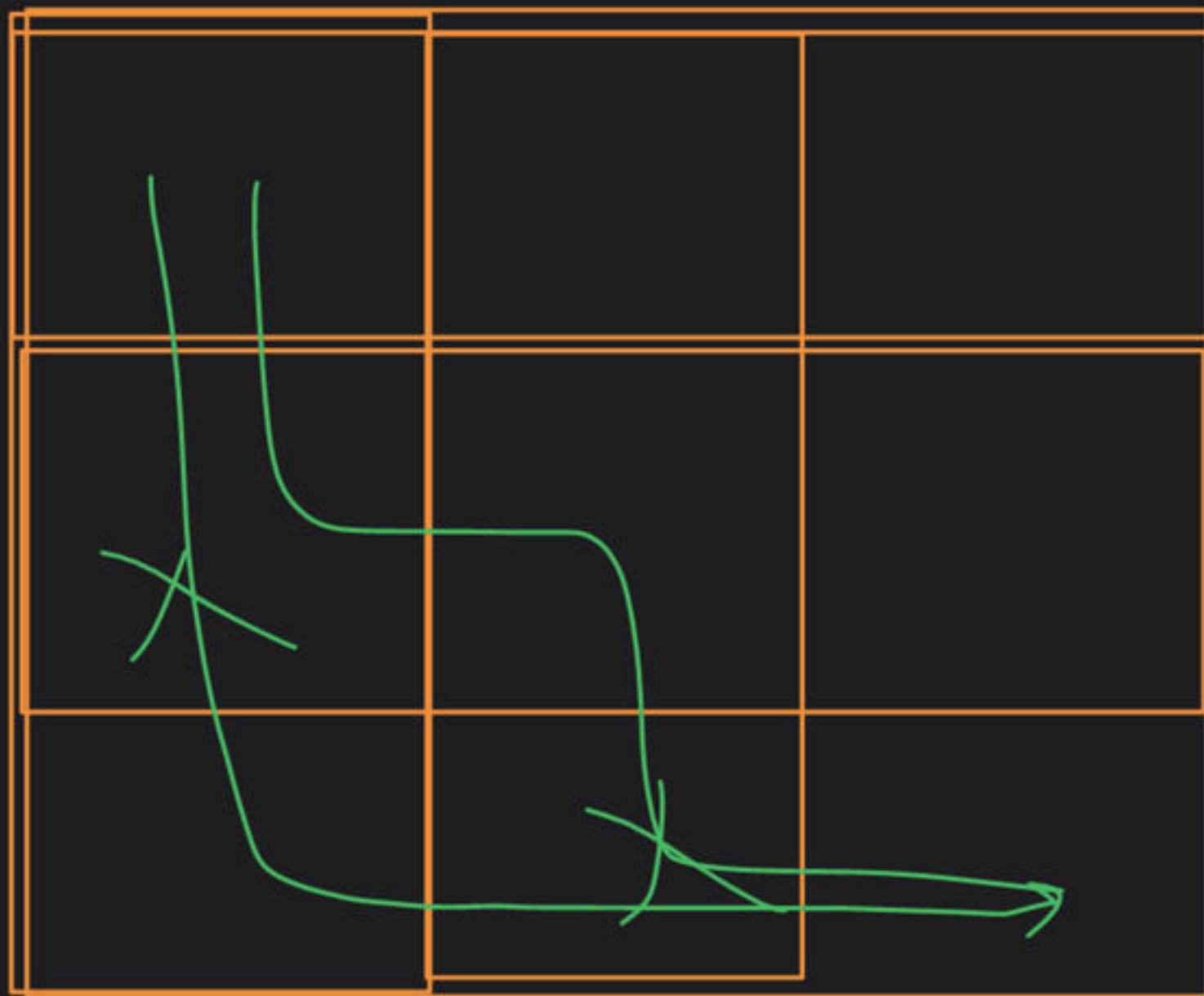
$(i,j)$   $\rightarrow$  4 ways  $\rightarrow$  D | L + R | U

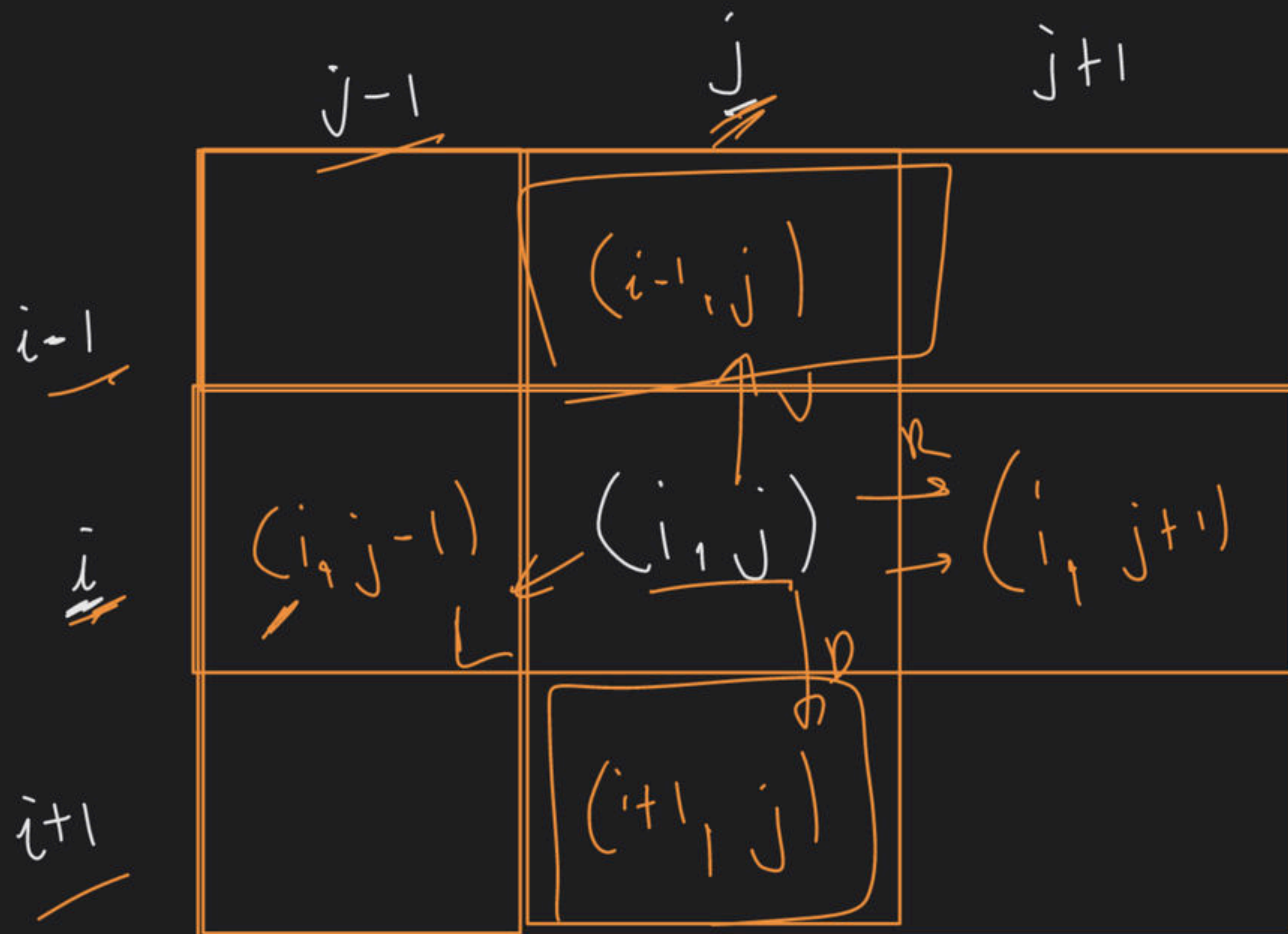
D =  $(i+1, j)$

R =  $(i, j+1)$

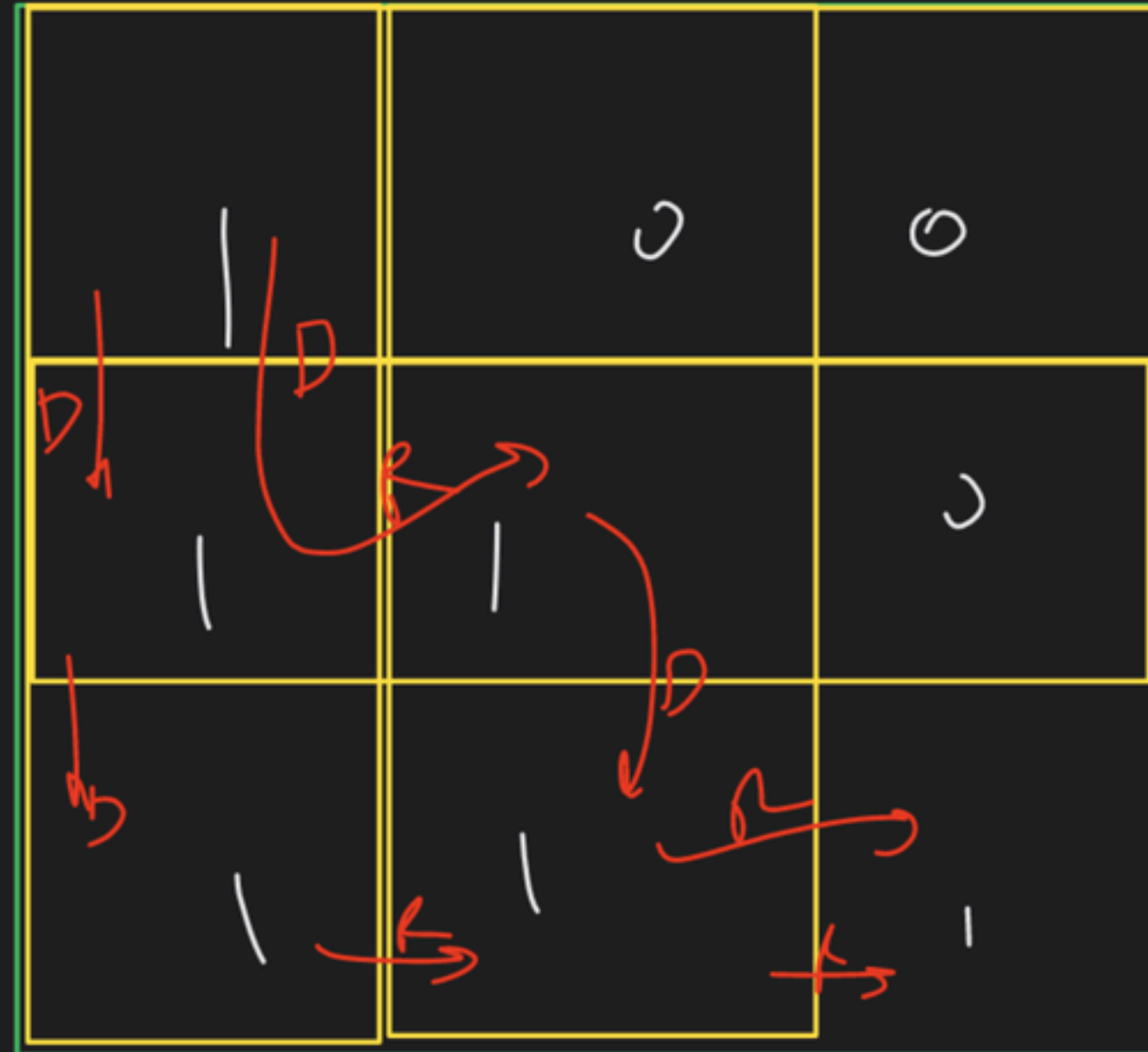
L =  $(i, j-1)$

U =  $(i-1, j)$





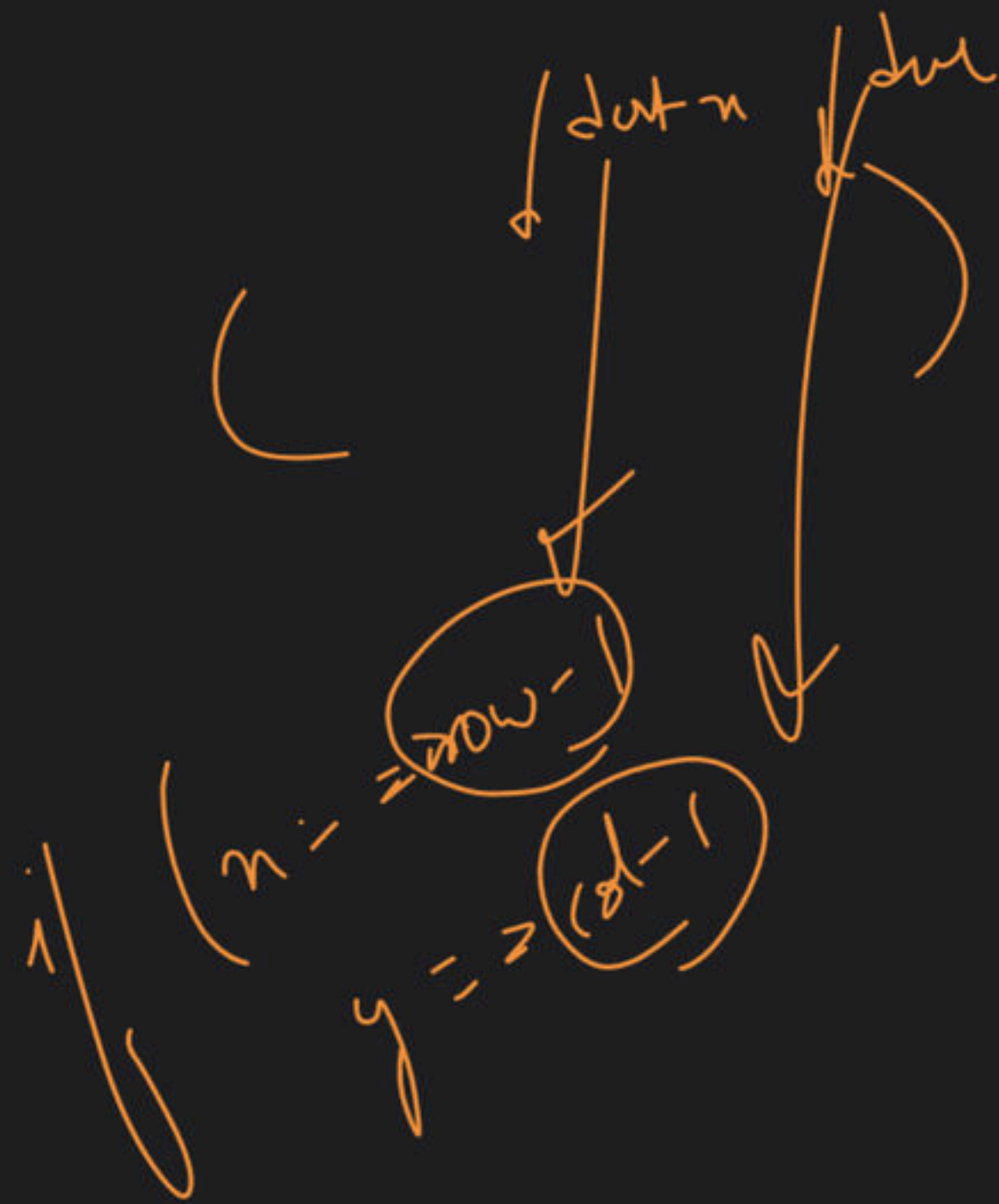




DDRRL  
DRDL







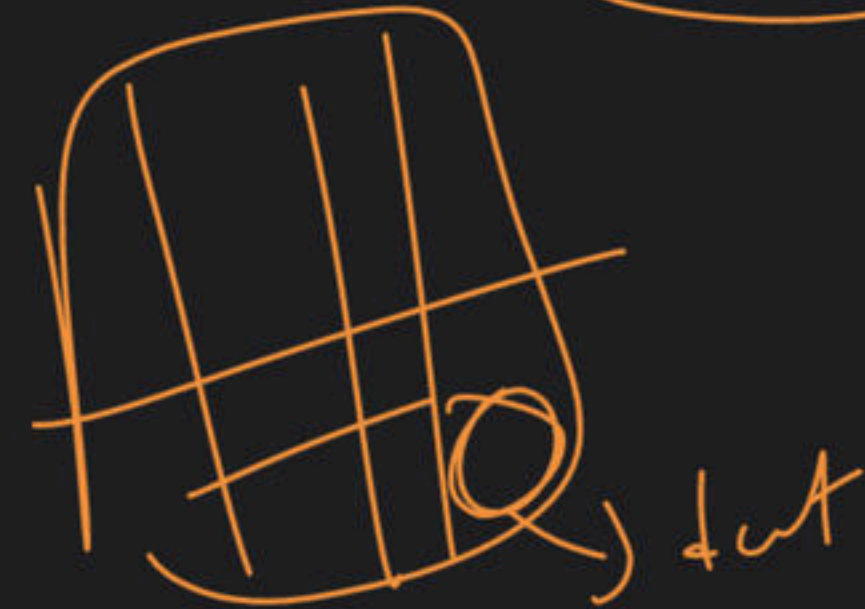
Base Case

Rukna hai

$n == dur$   
 $||$   
 $y == dur$

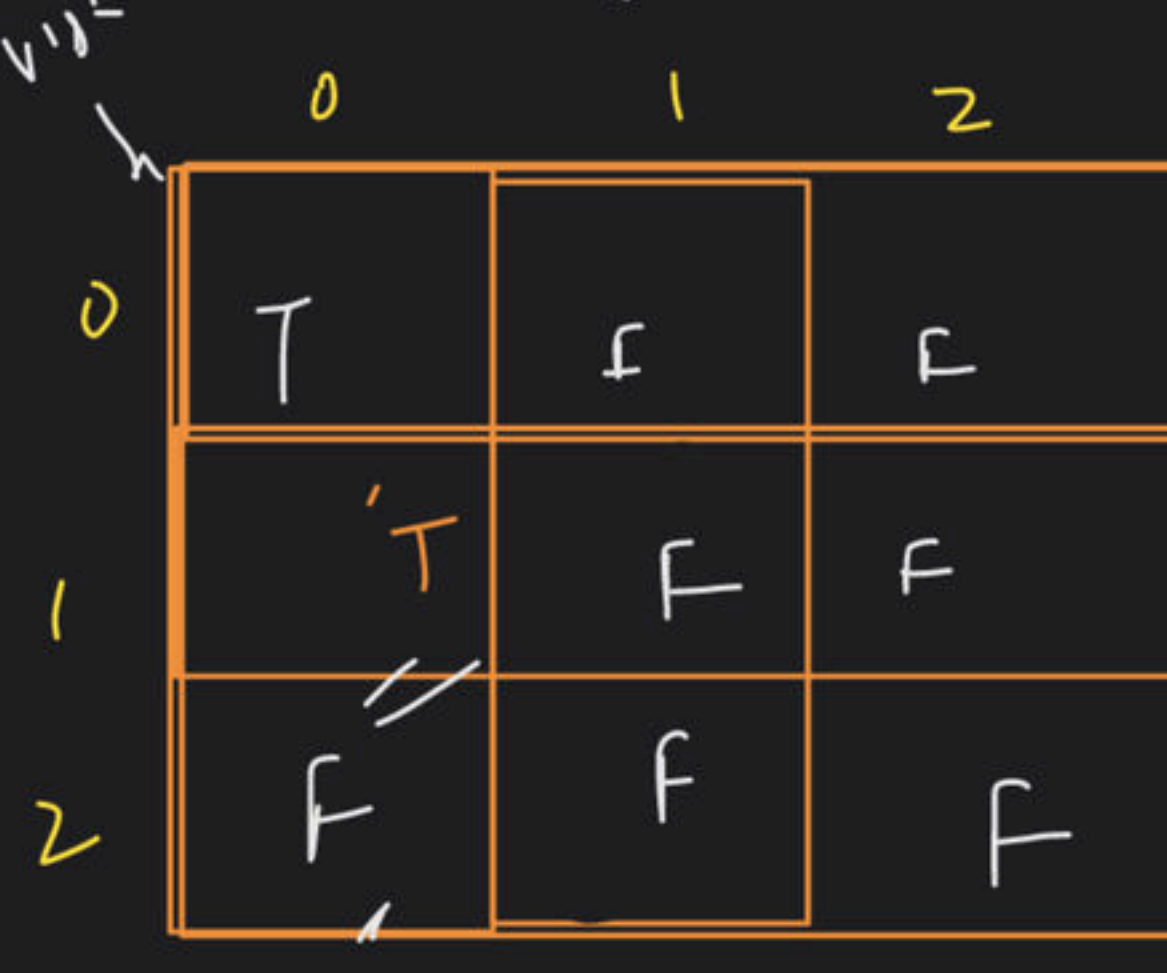
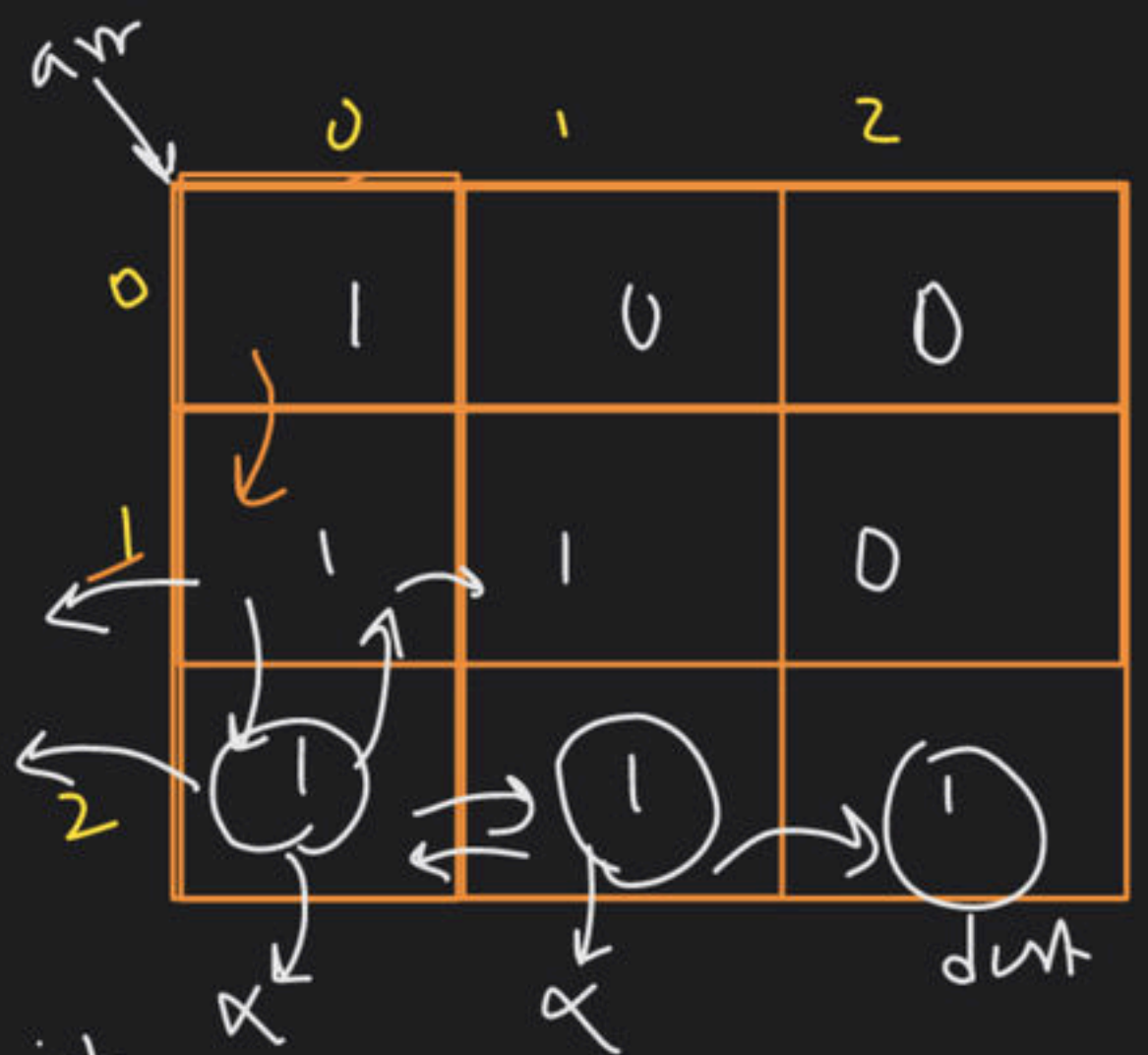
data push gya

output  
answ  
store



store  
path.push\_back(output)  
return;





path



$(0,0, 'D')$  ~~LRU~~ output

visited[1][0] = true  
 "" + D = "D"

$(1,0, 'D')$  ~~LRU~~ ~~U~~

vis[2][0] = F  
 vis[2][0] = T  
 "D" + D → "DD"

$(2,0, 'DD')$  ~~LRU~~ ~~U~~

vis[2][1] = F  
 vis[2][1] = T  
 "DD" + R → "DDR"

$(2,1, 'DDR')$  ~~LRU~~ ~~U~~

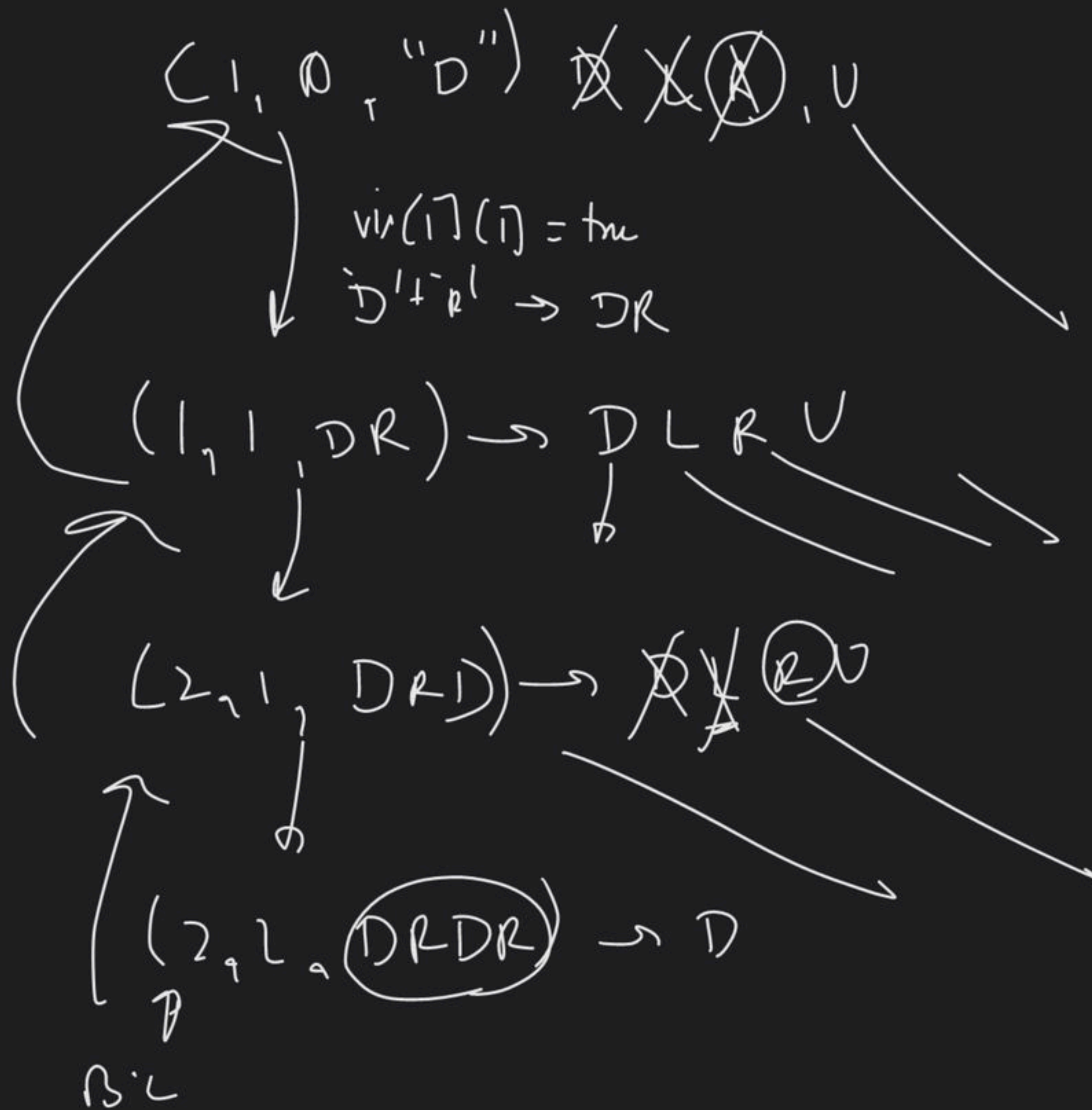
vis[2][2] = F  
 vis[2][2] = T  
 "DDR" + R → "DDRR"

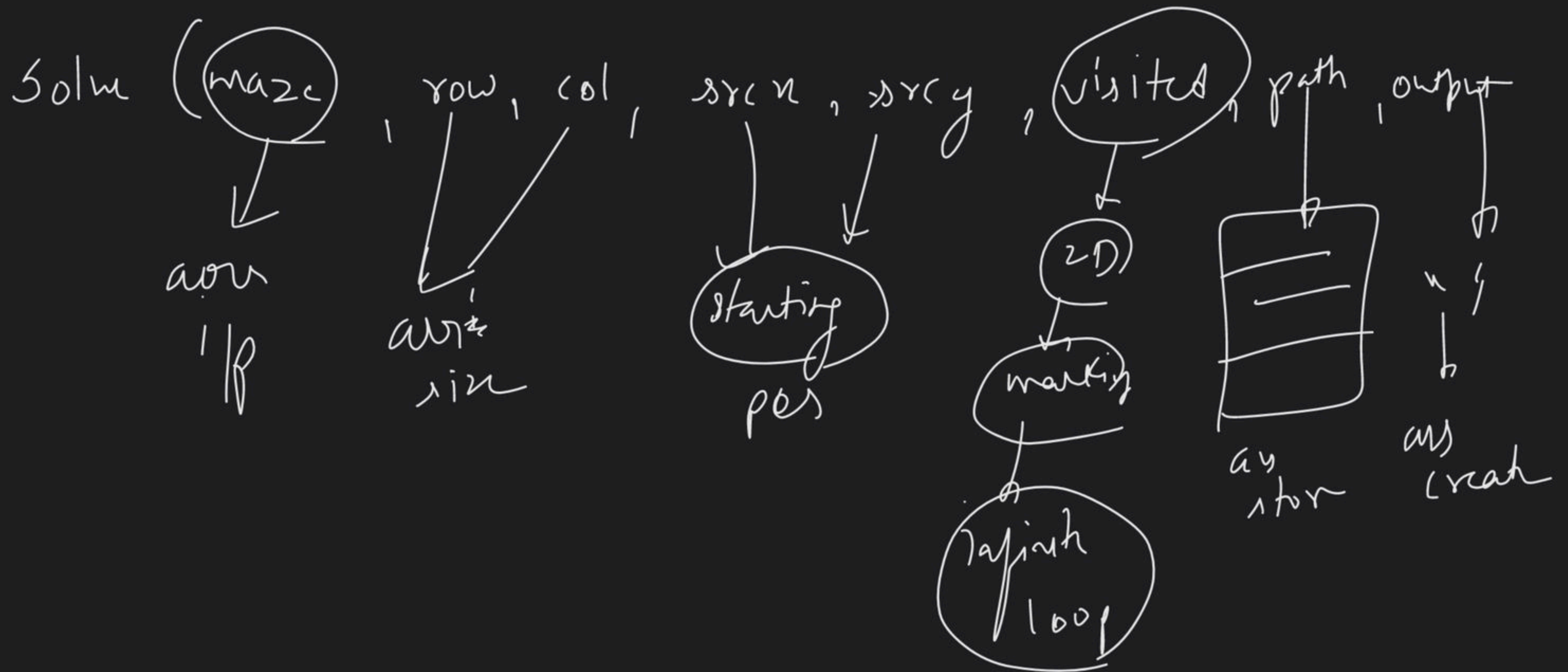
$(2,2, 'DDRR')$

vis[1][1] = T  
 "DDR" + U → "DDRUD"

$(1,1, 'DDRUD')$  ~~LRU~~ ~~U~~









isSafe (row, col, row, col, vis)

2 Baar

DRY  
RUN

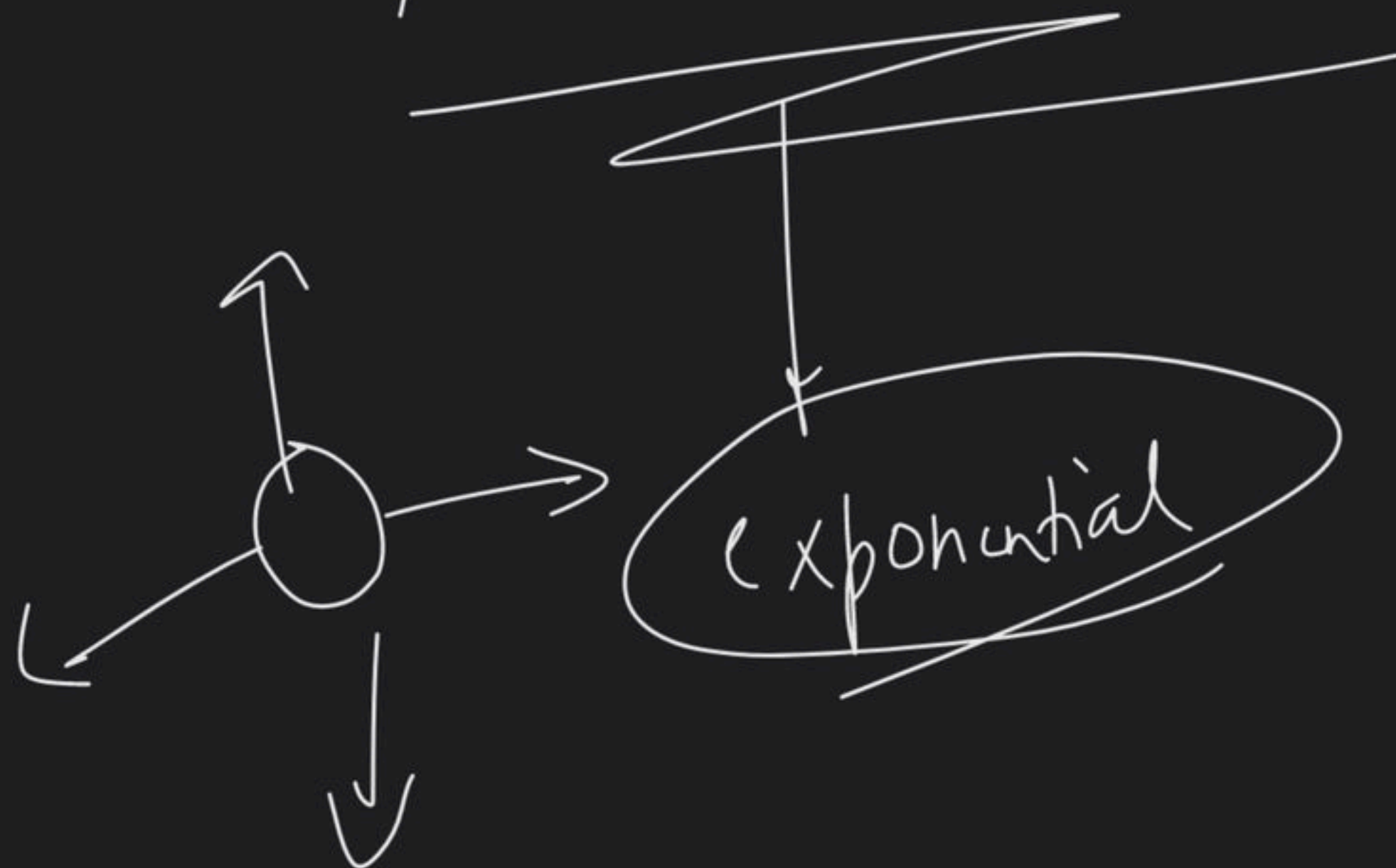
clarity

$n(y) \rightarrow \text{inside board} \rightarrow \begin{matrix} \geq 0 \ \& \lt \text{row} \\ \geq 0 \ \& \lt \text{col} \end{matrix}$

$\text{row}[7] = 1$

$\text{vis}[7][7] = \text{false}$

$T.C \rightarrow ?$



$$2^n$$









































