$$
\boxed{\;2.5\,h\;}
\begin{bmatrix}
\rightarrow \text{ Scale core values } \checkmark \\
\rightarrow \text{ How to always stay motivated } \checkmark \\
\rightarrow \underline{\text{Real world}} \text{ problem to understand the power of DS/Algo}
\end{bmatrix}
$$

$$
\left[\rightarrow \underline{\text{AMA}}\right.
$$

$$
\begin{bmatrix}
\text{D} \, \& \, \text{D} \\
\text{HLD - Basics} \\
\text{LLD - Basics (OOPs)}
\end{bmatrix}
$$

Hard Work $\checkmark$ V. Sehwag (Hand - eye co-ordenation)

$\underline{\text{gift}} \longrightarrow$

Consistency
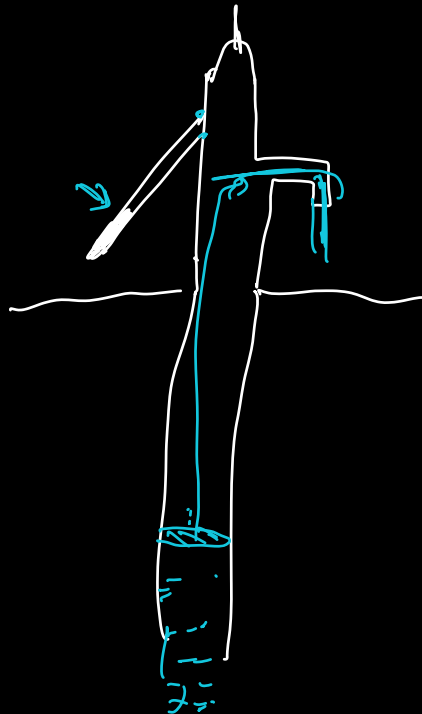
$$(1)^{365} \longrightarrow \underline{1}$$

$$(1.\underline{01})^{365} \longrightarrow 37.7$$

$\underline{\text{Compounding effect.}}$

How to remain motivated always

Motivation is temporary

80% people → Brush
                    └→ Part of routin

Motivation ——→ Action

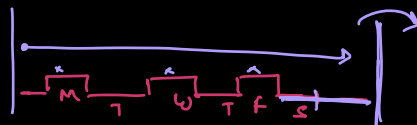⇒ | Actions ——→ Motivation |

⟹ Plan your day

- Don't prioritize your schedule, Schedule your priority.
- Calander app

⟹ Streak   350+ ✓
             380+ ✓ }

⟹ Make smaller goals.

Weekly goal of solving problems of 3 classes of that week

Dr. Kalam

"Don't ask anyone till you yrself fail to find the answer".

→ 30 min try out

→ Find the ans. (google)
↪ Ask: TAs
        Instructor (Slack)
        "Peers"

(What if --- ?)

Zero Sum game ✗
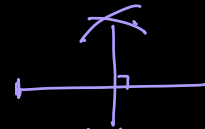
(+1)   − 1

Data Structure & Algorithm ✓ → Recap Steps
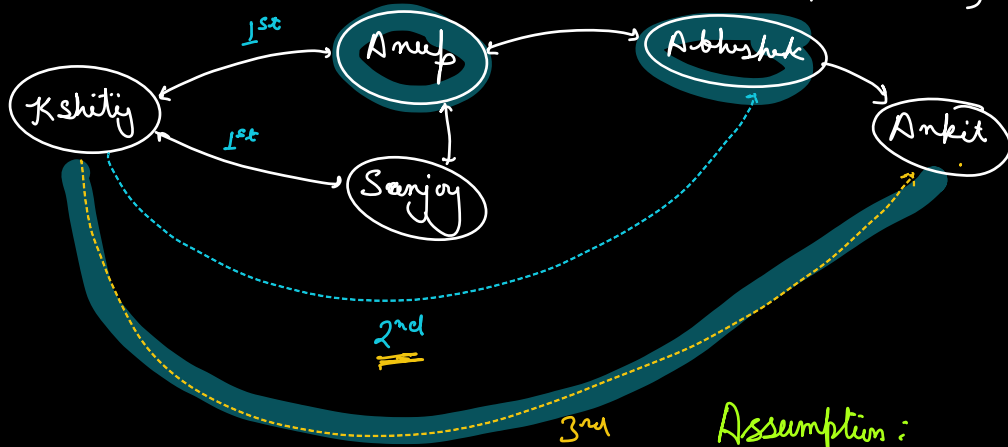
Arrays / Lists
Maps / Dict
Recursion.

⇒ Problem Solving Skills ✓

⇒ Accuracy ✓

⇒ Optimal ✓

Steps of constr.

Q. Linked In ⟹ Clique of connection (2nd / 3rd / 4th / --)

Kshitij ← 1st → Anup ↔ Abhishek → Ankit

1st — Sanjay

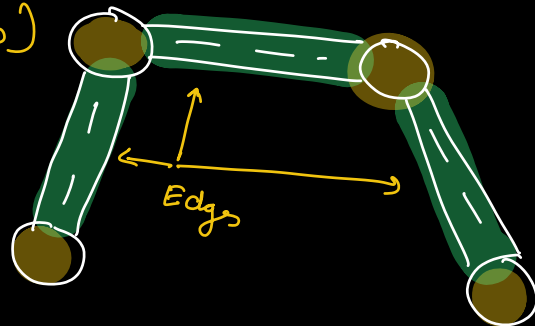2nd

3rd

Assumption :
1 profile can have 5000 connections at max

Given 2 profiles.
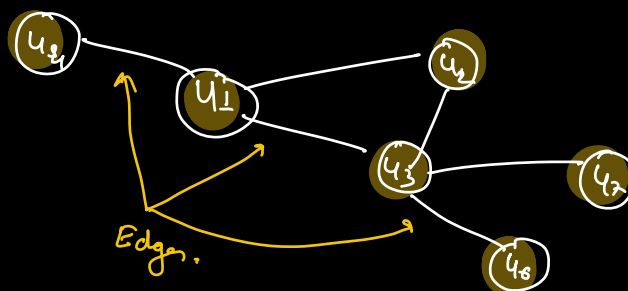
Check if they have 1st, 2nd, 3rd, 4th degree connected ?

Graph , BFS , DFS, MST , Red-Black tree.

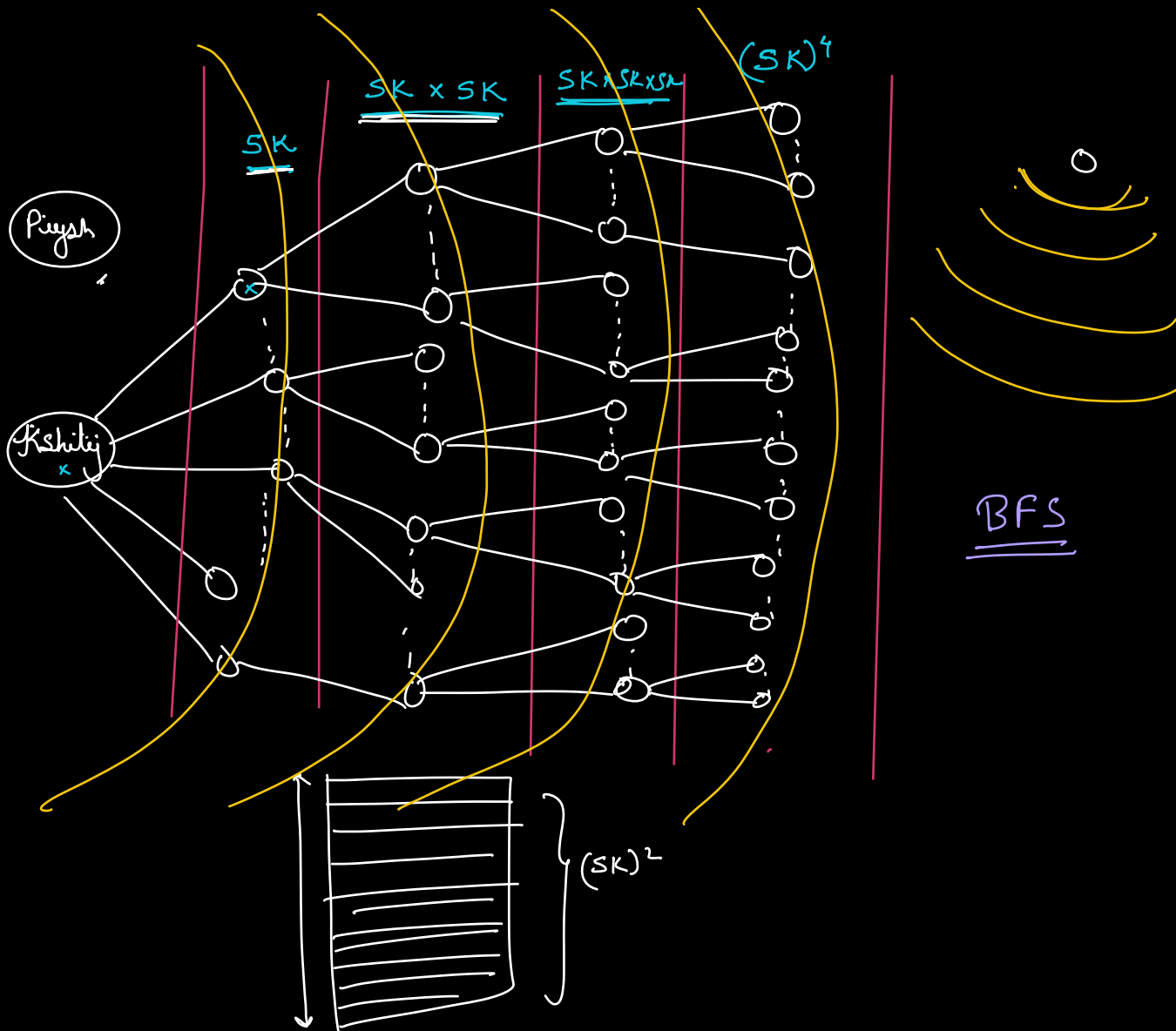## Graph : Network / connection
(Nodes & edges)

Roadway ⟹

Edges

Social Media

u_4 — u_5

u_1

u_3 — u_7

u_8

Edges.

Piyush

Kshitij

SK

SK × SK

SK×SK×SK

$(SK)^4$

$(SK)^2$

BFS

Assumption

$(100 GH)$

1 processor $\longrightarrow$ 1 GHz $(\$\$)$
(CPU)   (clock speed)

$\begin{bmatrix} \text{Phone} \\ \text{laptop} \\ \text{clshlop} \end{bmatrix} \Longrightarrow$

Camera .
Front camera
Display
GPU
RAM —
Memory —
'Clock speed (Hz)
$\hookrightarrow$ Measure of no. of
instruction performed in
1 sec .

1 GHz $\longrightarrow$ $\dfrac{10^8 \text{ iteration in cycle}}{\text{in 1 sec}}$

10^8 iterations $\longrightarrow$ 1 sec

⇒ ✓   5K iteration $\longrightarrow$ $\dfrac{5K}{10^8} = 5 \times 10^{-5}$ sec

⇒ ✓ $(5K)^2$ iterate $\longrightarrow$ $\dfrac{(5K)^2}{10^8} = $ <u>0.25 sec</u>

⊗ $(5K)^3$ iterations $\longrightarrow$ $\dfrac{(5K)^3}{10^8} = 1250$ sec

≈ 21 min

⊗ $(5K)^4$ iteration $\longrightarrow$ $\dfrac{(5K)^4}{10^8} = 625 \times 10^4$ sec

$= 72$ days

$(2.5$ months$)$

| Hash Set Hash Map Java | unorder-set unorder-map C/C++ | Set Dict Python C# | Set Map JS/Ruby |

Pure Magic

List (Array)

(Check wf. 15

is present

No of iterations = N

101
211
59
63
72
49
001
3
10
12
701
812
951
5
7
8
13
13

N

Map/Set

15

1 iteration

101, 211, 5, 6
8, 951, 812, 14
10, 3, 001, 72
63 - - - -

Map/set

How ? ⟹ 2Hr

TC

→ Array

→ Linked lists

→ Binary Trees

→ Balanced BT

→ Red/Black Tree

map

3rd degree connecti

$$(5K)^3$$

Map

$$(5K)^3$$
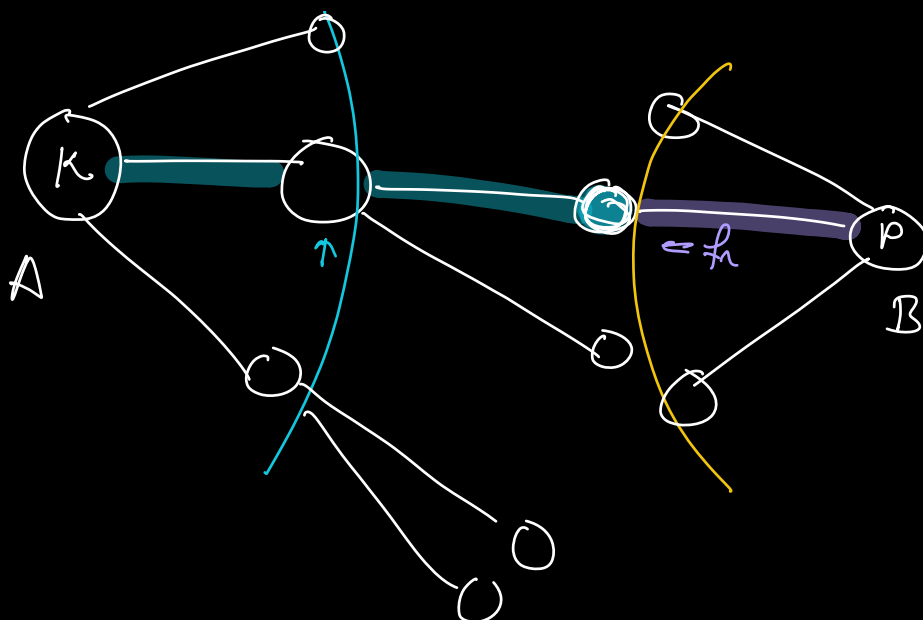
if A & B have a 3rd degree connecti

$\Rightarrow$ $f_n(f_n(A))$ & $f_n(B)$

will have at least one profile

common.

$f_n(K)$

$f_n(f_n(K))$

$f_n(P)$

$$\left| f_n \left(f_n \left(A \right) \right) \right| \implies \left(5K \right)^2 \;\Leftarrow$$

$$\left| f_n \left(B \right) \right| \implies \left(5K \right) \;\Leftarrow$$

$(SK)^2$

$(SK)^2$
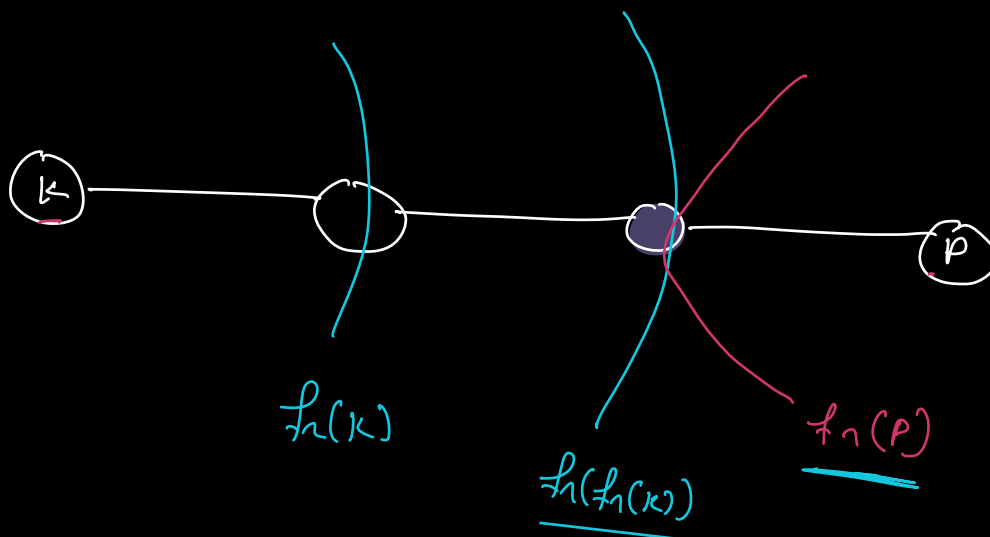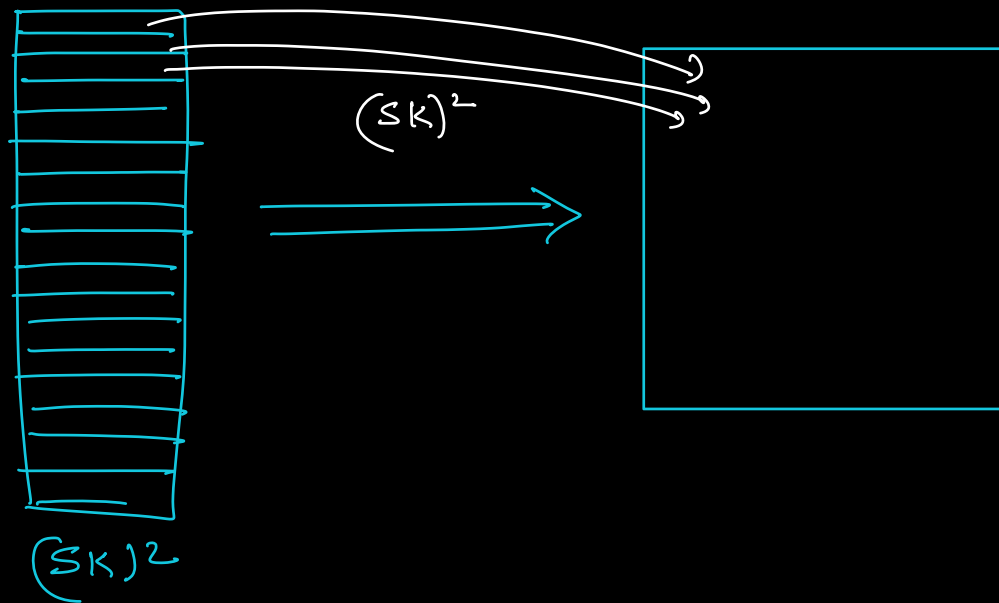
① Add $(SK)^2$ profiles in $f_n \left(f_n \left(A \right) \right)$ to a hashmap.

$\implies (SK)^2$ iteration

② Check for intersection b/w $f_n \left(f_n \left(A \right) \right)$ & $f_n \left(B \right)$

$\implies$ SK iteration

SK —
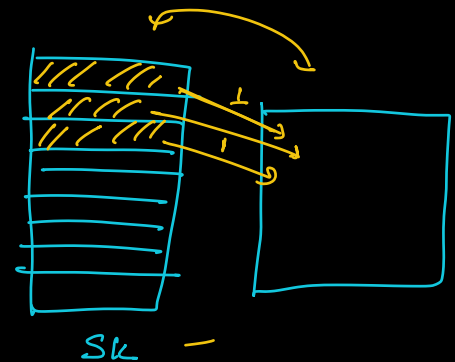
iteration $= (SK)^2 + (SK) \approx (SK)^2 \implies$ .25 sec
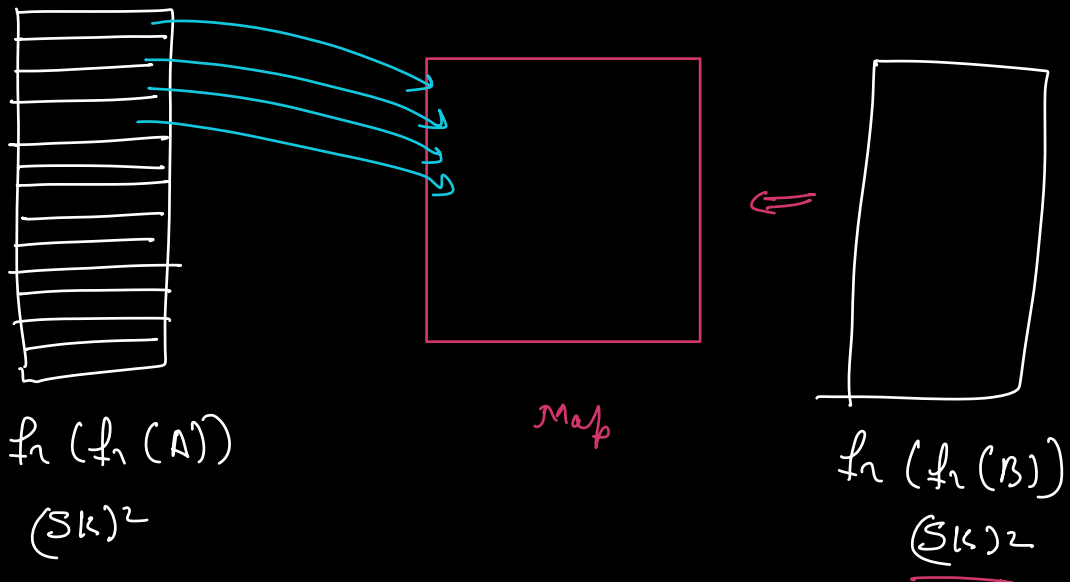
$f_n(K)$

$f_n(f_n(K))$

$f_n(P)$

$f_n(f_n(P))$
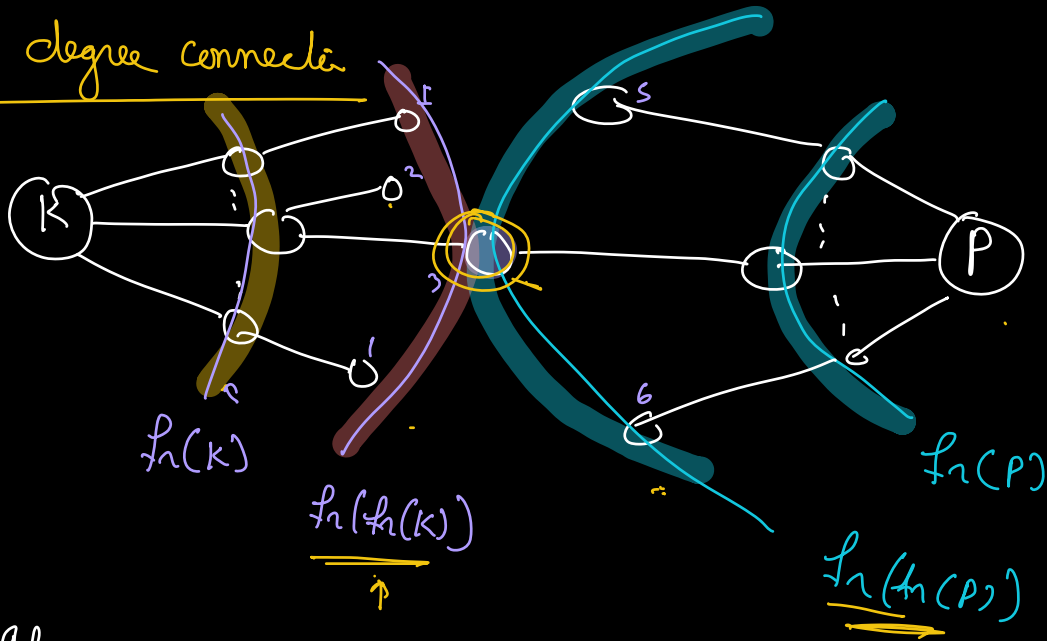
If   A & B   have a   4th degree connectir

$\Rightarrow$ $f_n(f_n(A))$ & $f_n(f_n(B))$

will   have   at   least   1   profile in common.

$f_n(f_n(A))$

$(SK)^2$

Map

$f_n(f_n(B))$

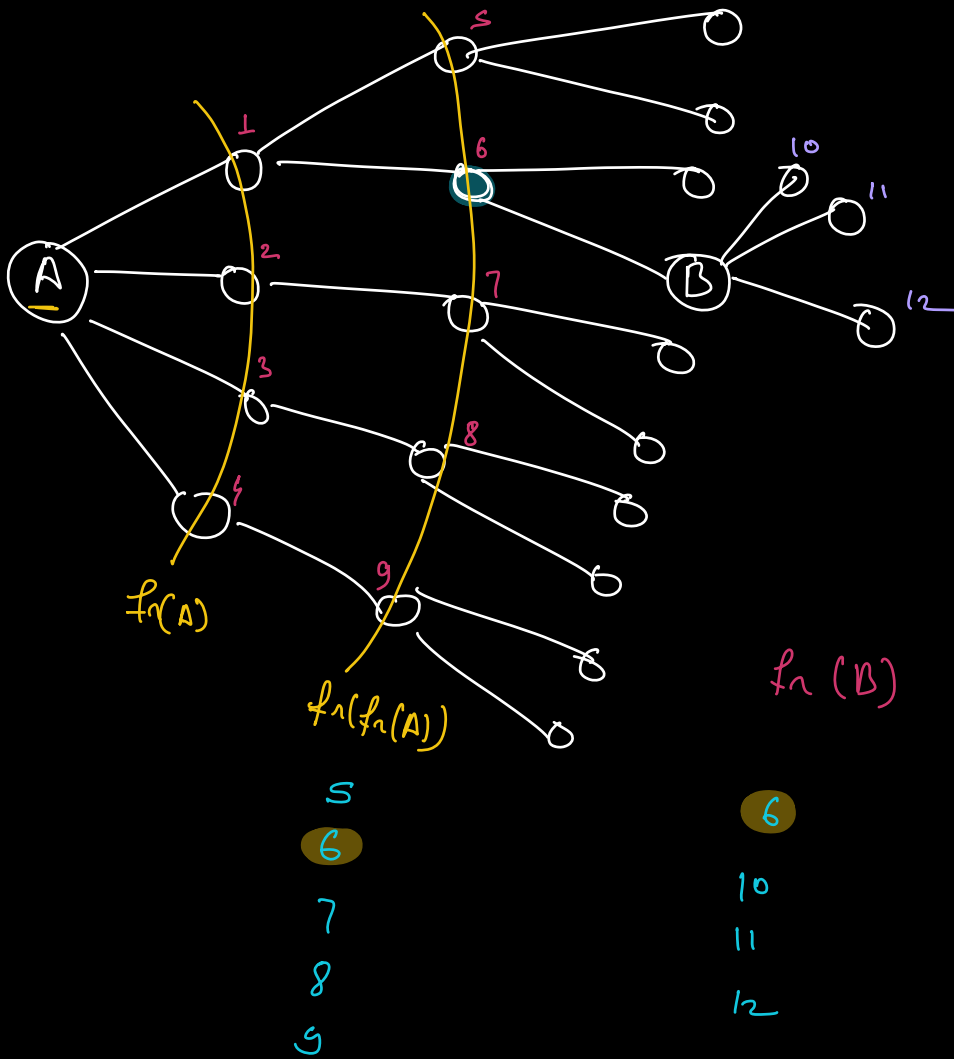$(SK)^2$

①   Add one of the list to a map

$\Rightarrow (SK)^2$ iteration

②   Check for intersection of $f_2(f_2(A))$ &
$f_2(f_2(B))$ (List)
    (Map)

$\Rightarrow (SK)^2$ iterate

\# Total iterate $= (SK)^2 + (SK)^2$

$= 2 \times (SK)^2$

$\longrightarrow$ $\underline{0.5\ sec}$

72 days $\longrightarrow$ 0.5 Sec

1st $\longrightarrow$ 2nd $\longrightarrow$ 3rd $\longrightarrow$ ④th

$f_n(A)$

$f_n(f_n(A))$

$f_n(B)$

5
6
7
8
9

6
10
11
12

Support @ Scaler . com
↳ Slack
@ support

24h

2.5 hr
9 - 11.30 p
↳

Glassdoor

Mn   Ma