

Dare to Dream

- Core values]
- Useful]
- Example showing importance of DS/Algo
- AMA

Performance eq.

$$\frac{\text{Performance}}{\text{Scale}} = \frac{\text{Potential}}{\text{Year}} \uparrow - \frac{\text{Interference}}{\text{Year}} \downarrow$$

Core Value

① Hard work.

N. Schwag [~~Hard - eye words~~)

② Consistency

$$1 \longrightarrow (1)^{365} = 1$$

$$1\%, 1.01 \longrightarrow (1.01)^{365} = 37.5$$

① Doing X

② No time / Bad time

→ Plan your day

• Use calendar

• Don't prioritize schedules, schedule priorities.

1.5-2 h

→ Make smaller goals

Weekly goal → 3 classes

③ Demotivation / Losing motivation

Motivation is not permanent X

90% → Brush daily.

80% → Not motivated

Motivation → Action X

Action → Motivation

Amazon

① www.amazon.in → High Availability.

② Search

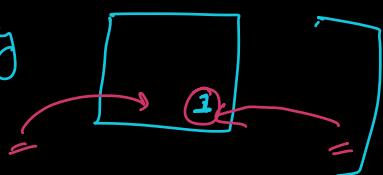


Auto Suggest
Search ↳
Sort

③ Checart

④ Delivery

Concurrency

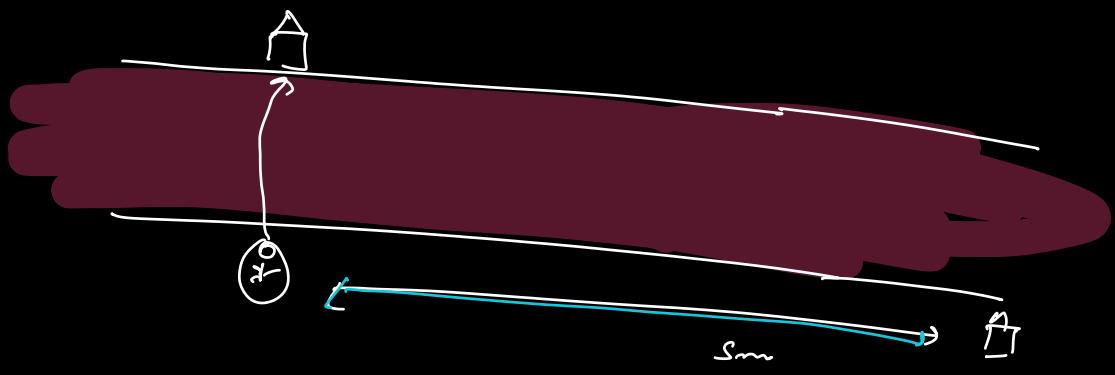


Graph

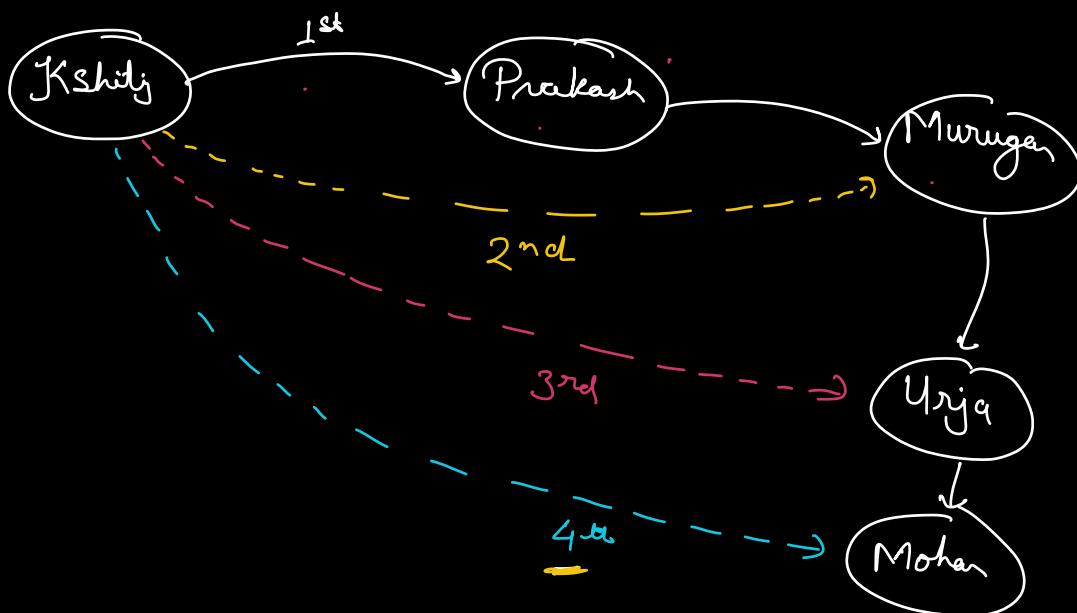
→ Distance

→ EDT

→ Type of item



Q Degree of Connection



Given two profiles.

Find the degree of connection b/w them.

[IP \rightarrow SK connection]

(1st, 2nd, 3rd, 4th, 4+)

Kshitij

Mohan \Rightarrow 4

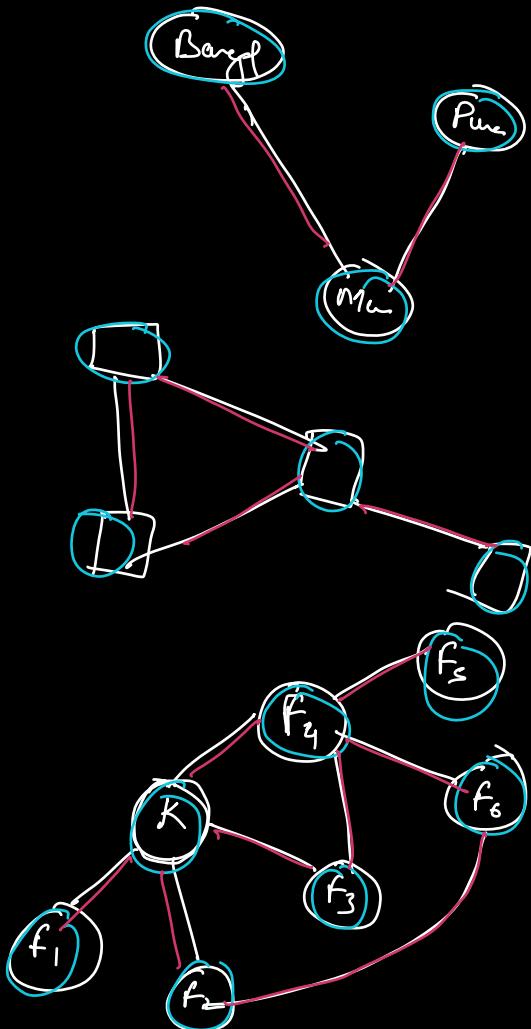
Graph / BFS / DFS / Tree

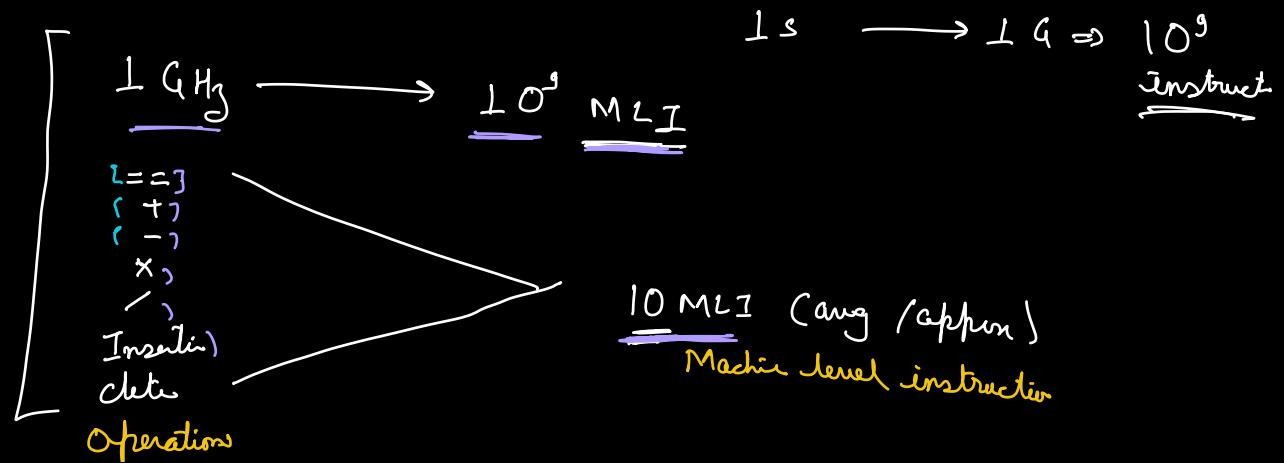
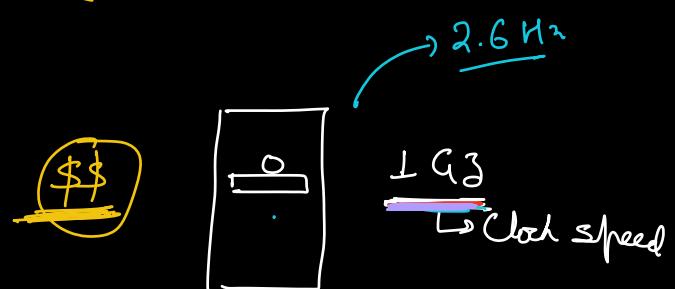
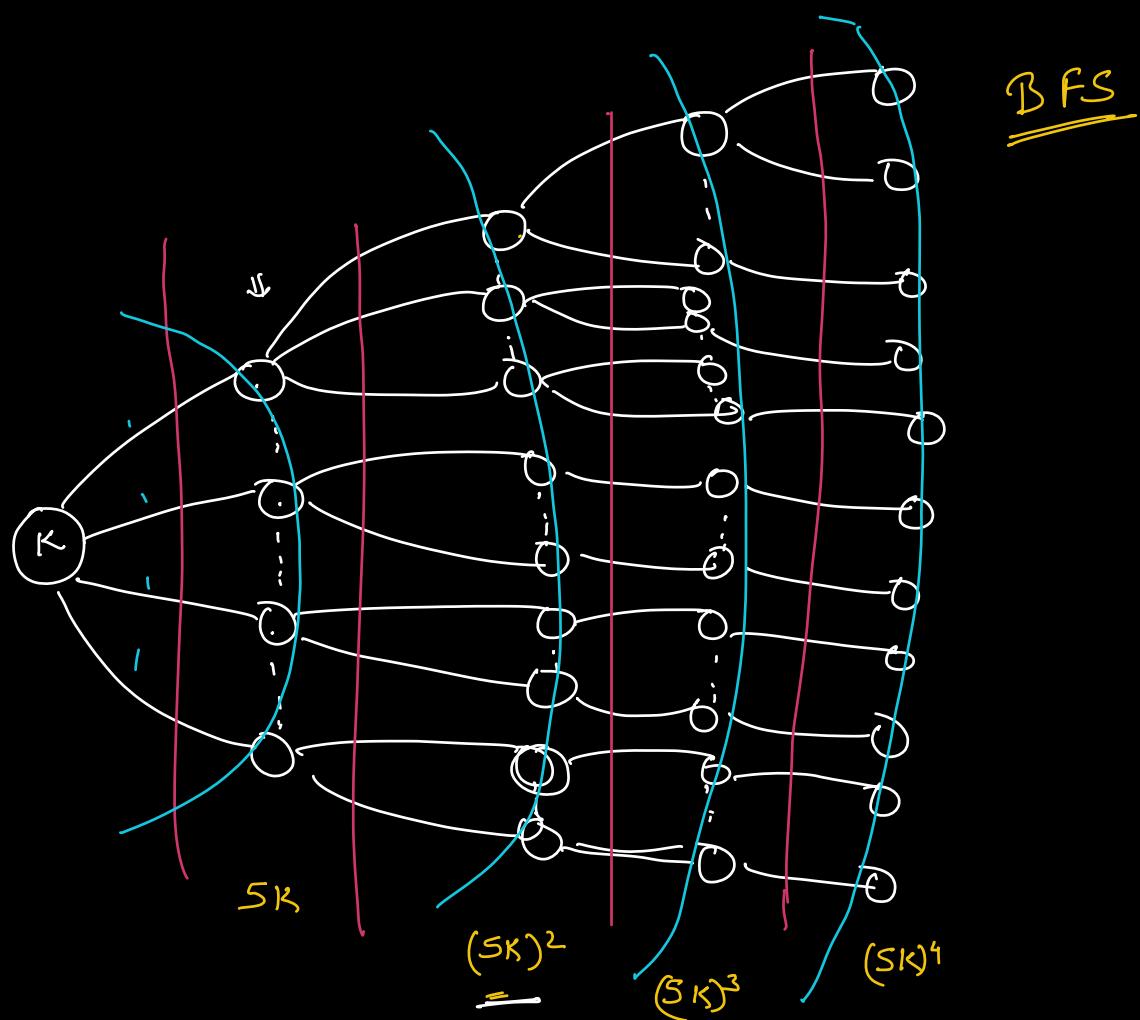
Dijkstra /

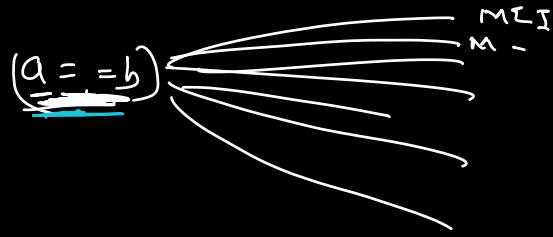
Graph : Network / Connection
↳ Node
↳ Edges
Roadway

Internet

(f)







1 operation
(=)

10 MLI

$$\frac{1}{2} \frac{70}{700} \rightarrow \frac{1}{2} \frac{700}{70}$$

10 MLI

1 operati.

10^3 MLI

$$\frac{10^3}{10} = 10^2 \text{ operati.}$$

1 s

10^9 MLI

1 s

10^8 operat.



Break still 10: ssp

" "

$$10^8 \text{ operati.} \rightarrow 1 \text{ s}$$

$$\textcircled{S} 5K \text{ operati.} \rightarrow \frac{5000}{10^8} = \boxed{5 \times 10^{-5} \text{ sec}}$$

$$\textcircled{S} (5K)^2 \text{ operati.} \rightarrow \frac{5000 \times 5000}{10^8} = \boxed{0.25 \text{ sec}}$$

$$\textcircled{S} (5K)^3 \text{ operati.} \rightarrow \frac{5000 \times 5000 \times 5000}{10^8} = 1250 \text{ sec} \approx \boxed{21 \text{ min}} ?$$

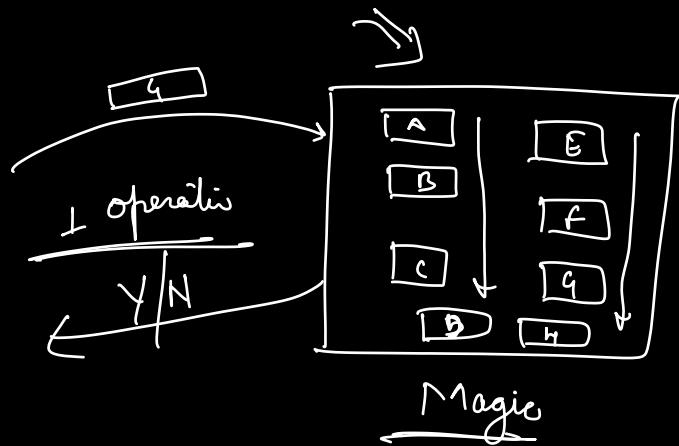
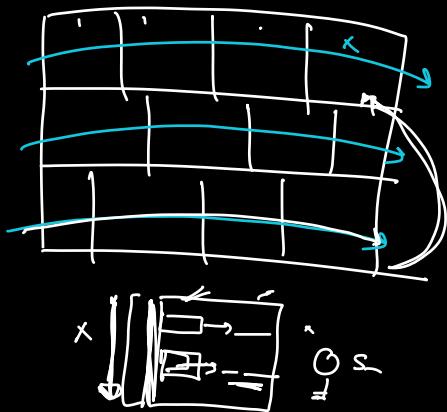
$$\textcircled{S} (5K)^4 \text{ operati.} \rightarrow \frac{(5000)^4}{10^8} = 625 \times 10^4 \text{ sec} \approx \boxed{72 \text{ days} + 8 \text{ hr}} ?$$

HashMap / Set

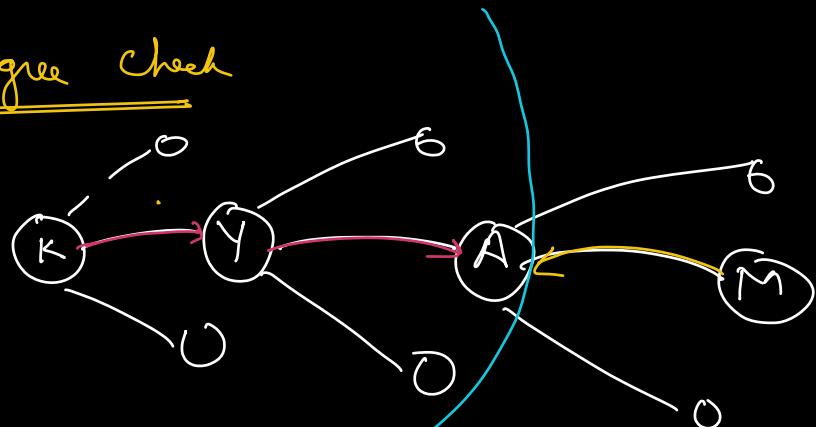
Unordered Map

Dict

Map



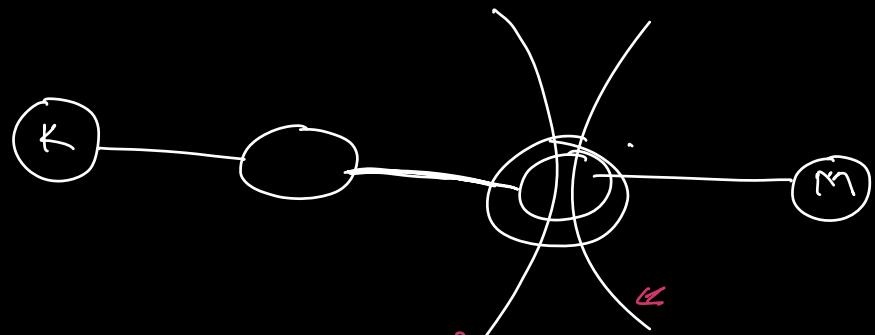
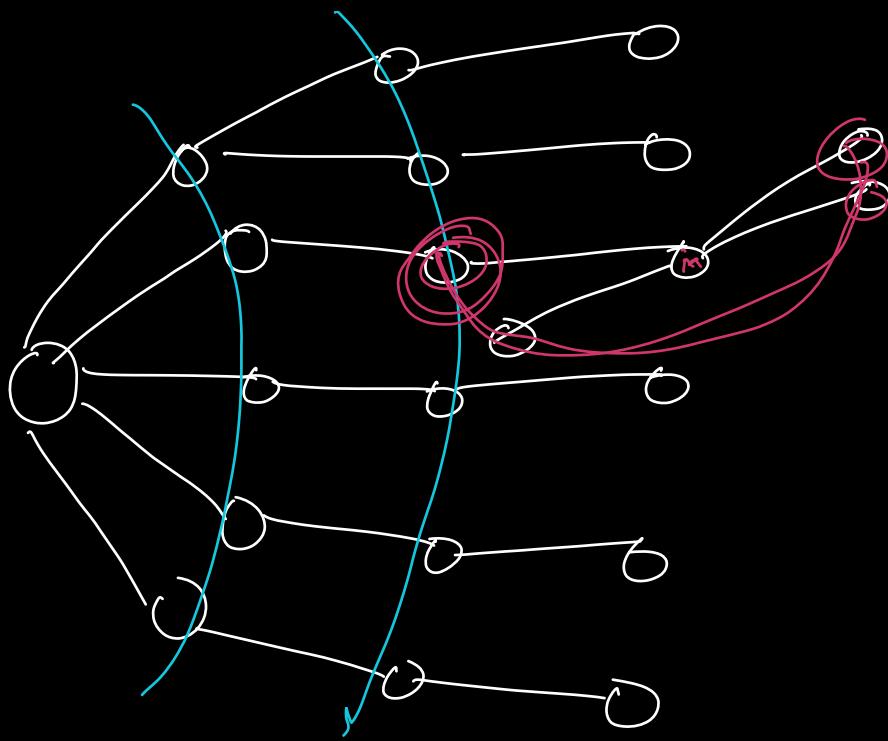
3rd degree check



if $K \leftarrow M$ have a 3rd degree connect

then

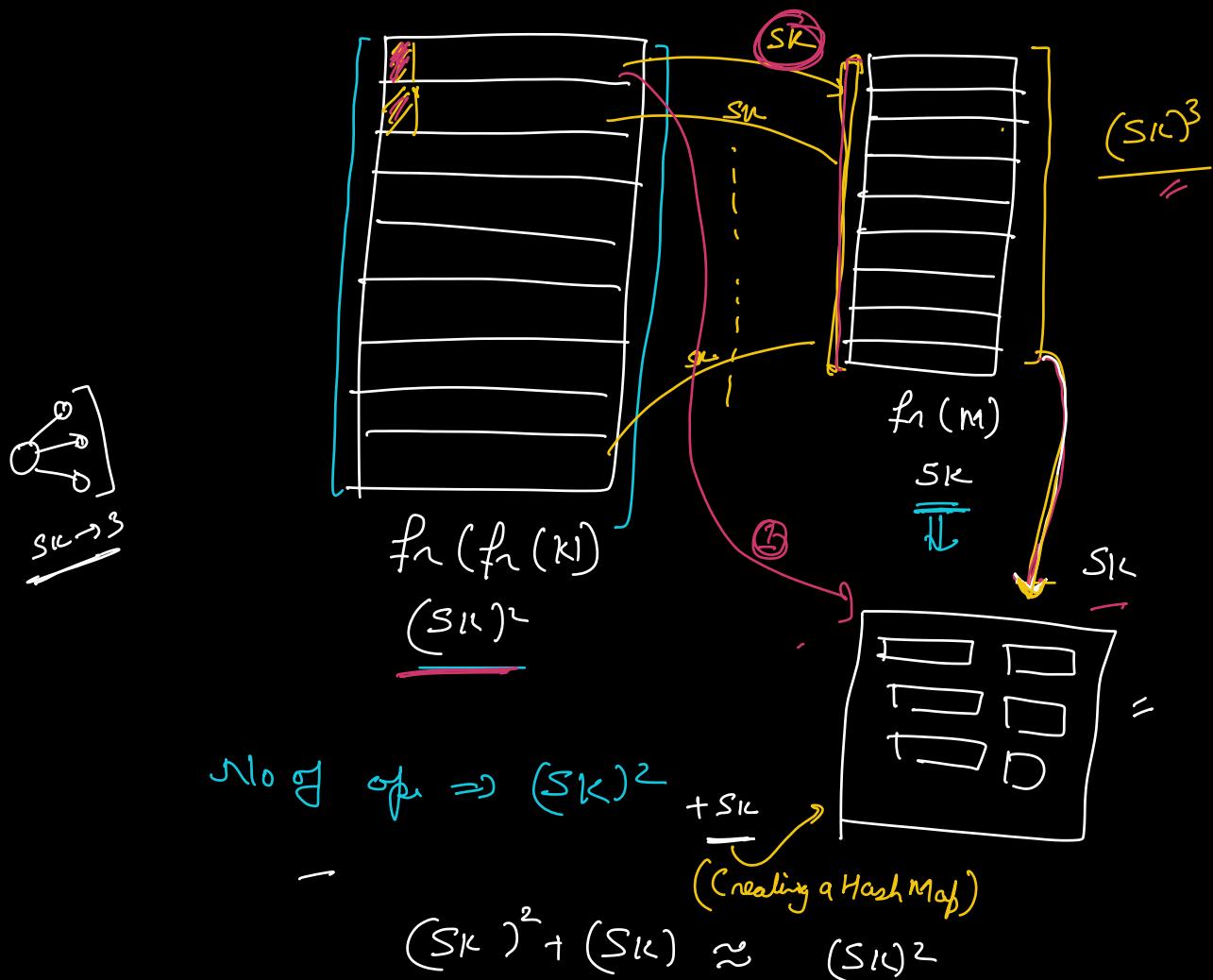
$f_n(f_n(K))$ & $f_n(M)$ will have
at least 1 mutual connect.



$$f_n(A) \Rightarrow \underline{s_K} \xrightarrow{\quad} s \times 10^{-s} s_n$$

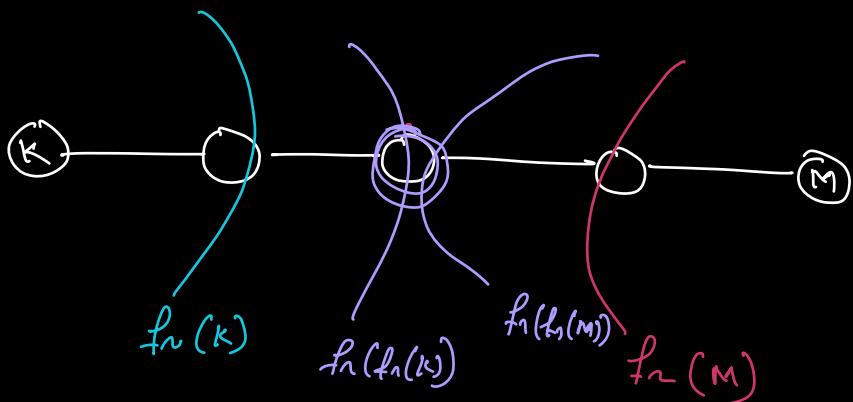
$$f_n(f_n(A)) \Rightarrow \underline{(s_K)^2} \xrightarrow{\quad} \cdot 2 s s_n$$

$$\Rightarrow f_n(f_n(f_n(A))) \Rightarrow \underline{(s_K)^3}$$



$$\underline{25000000} + 5000 \approx 25 \times 10^6$$

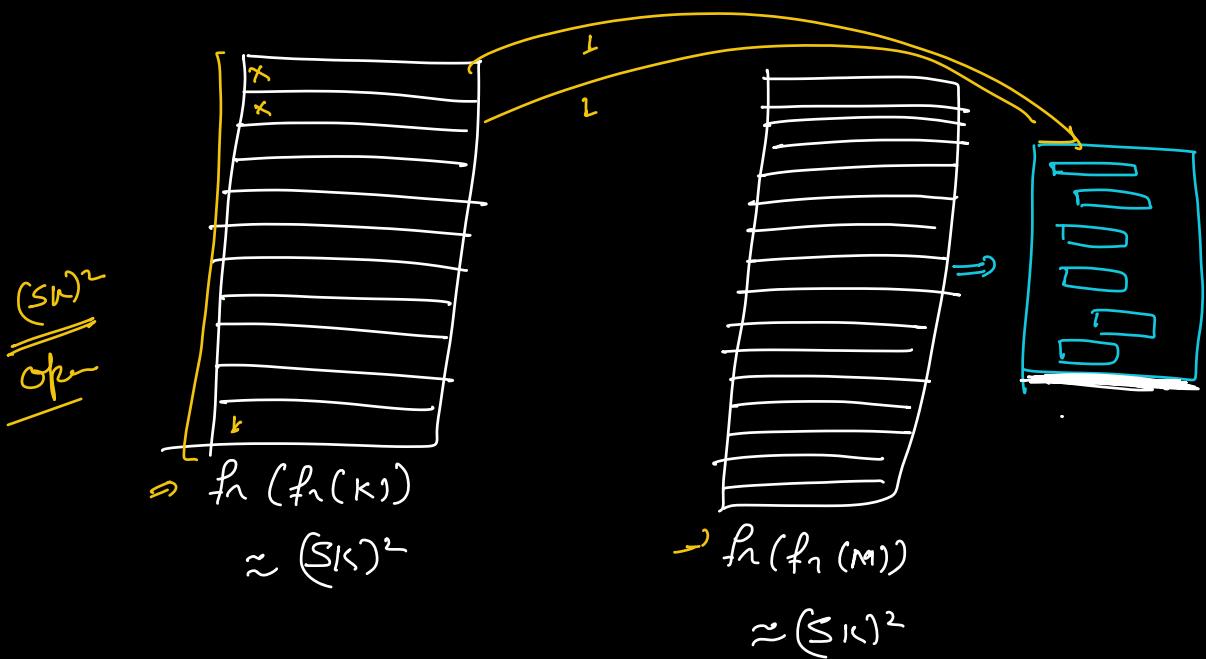
4th degree



if K & M are in 4th degree connect

$$\Rightarrow f_n(f_n(K)) \& f_n(f_n(M))$$

will have at least 1 mutual connect.



$$\begin{aligned}
 \text{No of operate} = & \frac{\text{Build Hash Map}}{\text{of size } (Sk)^2} + \frac{\text{Checky for } (Sk)^2}{\text{in Hash Map}} \\
 & \frac{(Sk)^2}{(Sk)^2}
 \end{aligned}$$

$$= (5K)^2 (1+1)$$

$$= 2 \times (5K)^2 \text{ open}$$

$$\begin{aligned} 10^8 \text{ op} &\longrightarrow L \\ 2 \times (5K)^2 \text{ op} &\longrightarrow \frac{2 \times 5000 \times 5000}{10^8} = 500 \text{ day} \end{aligned}$$

SAT
→ *cycle*
3h

1h → Basic
2h → Inv

$$< 1^{st} \longrightarrow (5K) \rightarrow 5 \times 10^{-3} s$$

