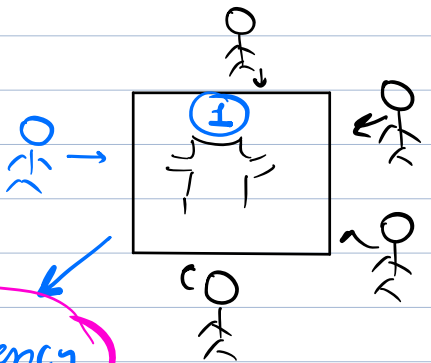
Amazon → amazon.in → Availability. HLD

PHO

PHO DSA

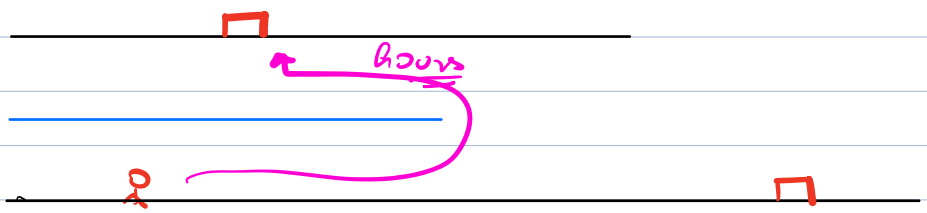
↓ auto suggestions



Search DSA

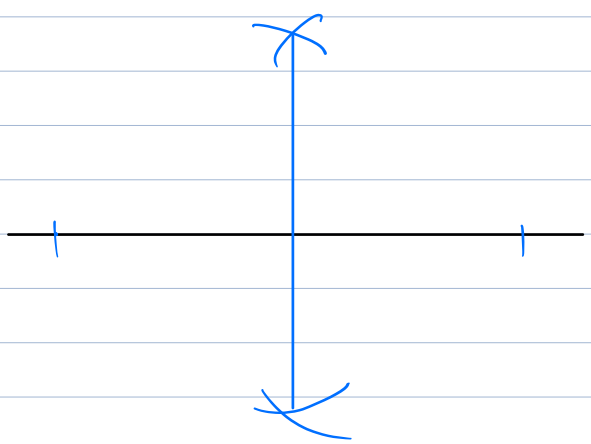
filter/sort DSA

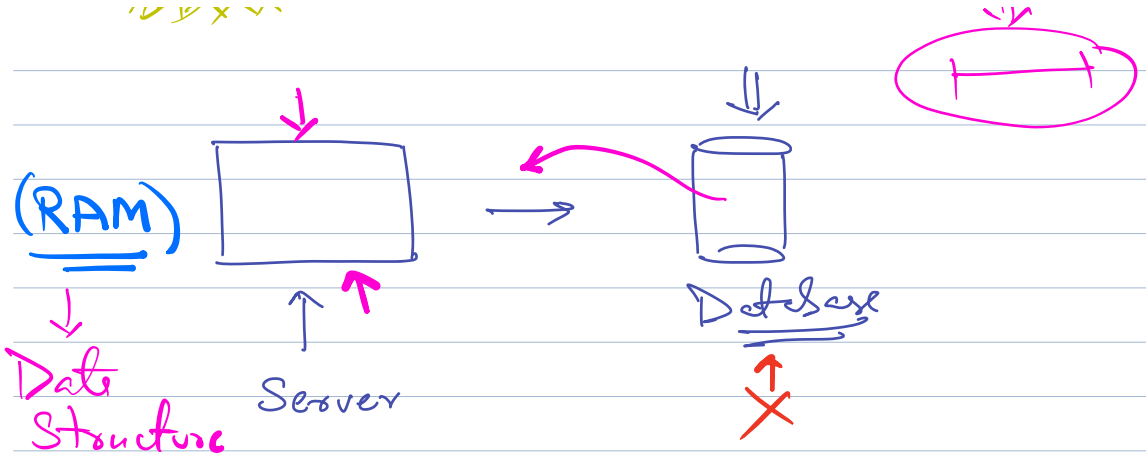
Concurrency LLD



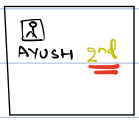
Steps :

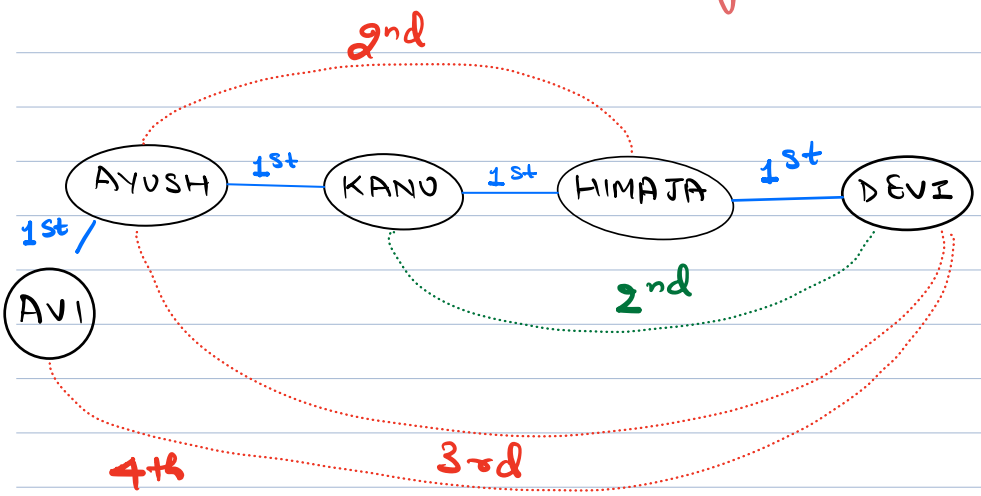
↳ Algorithm





LinkedIn : Degree of Connection.





Given 2 LinkedIn Profiles

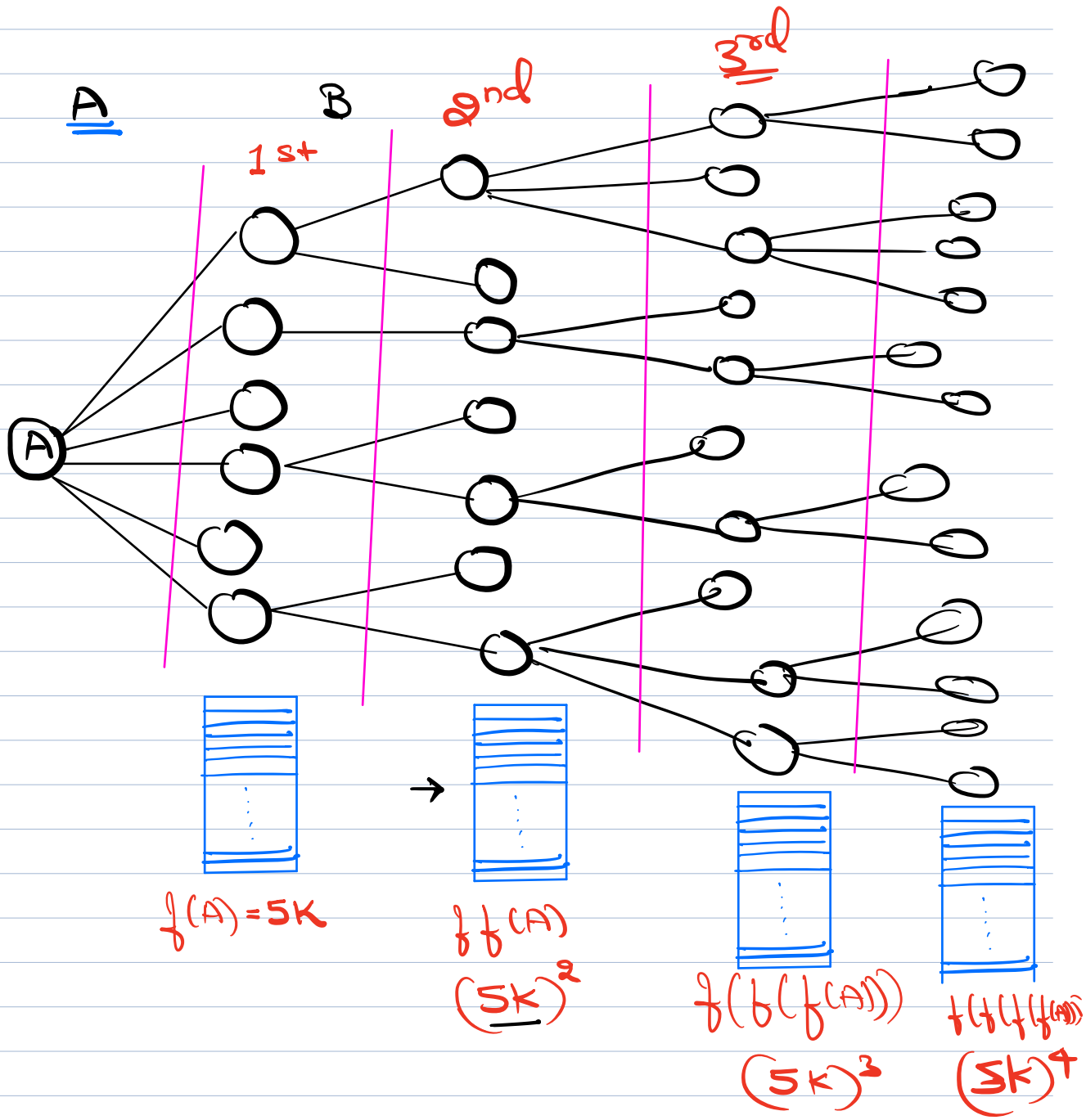
Check if the degree of connection b/w the profiles is 1^{st} / 2^{nd} / 3^{rd} / 4^{th} or $4+$

id 1 id 2

getAllFriends (idx) → List of ids of

friends of idx

Ass: One person will at most be having 5k connections.



Assumptions

1 CPU ⟶ 1 GH_z (Clock Speed)

1 GH_z ⟶ 10^8 iterations / sec

10 pencils ⟶ 100 Rs

200 pencils ⟶ $\frac{100 \times 200}{10}$ = 2000 Rs

⇒ If 10^8 iterations takes 1 sec

✓ 5K iteration ⟶ " ⟶ $\frac{5000 \times 1}{10^8}$

= 5×10^{-5} sec

✓ $(5K)^2$ iteration — " — $\frac{5000 \times 5000}{10^8}$

= .25 sec.

✗ $(5K)^3$ iteration — " — $\frac{5000 \times 5000 \times 5000}{10^8}$

= 1250 seconds.

≈ 21 mins.

~~$(5K)^4$~~ iteration —"— $\frac{5000 \times 5000 \times 5000 \times 5000}{10^8}$

$\simeq 625 \times 10^4$ sec

$\simeq$ 72 days > 2.5 mnk

$1CH_3 \rightarrow 10\,CH_3$

$$$$

True Magic ?!

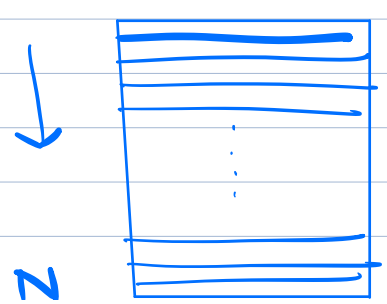
PC Sarkar

Set / Map

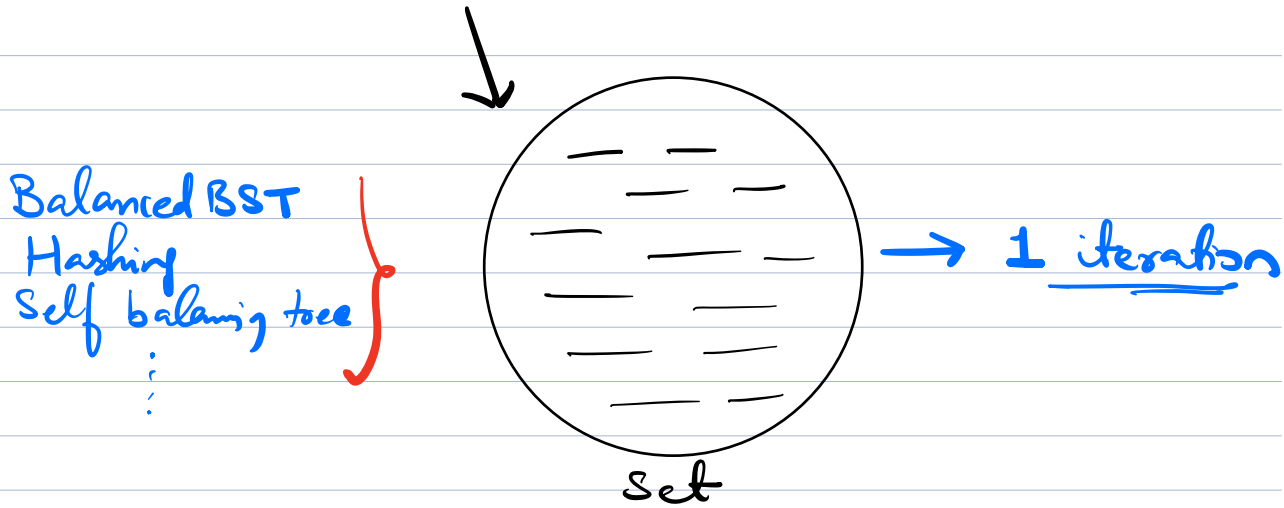
What?

How?

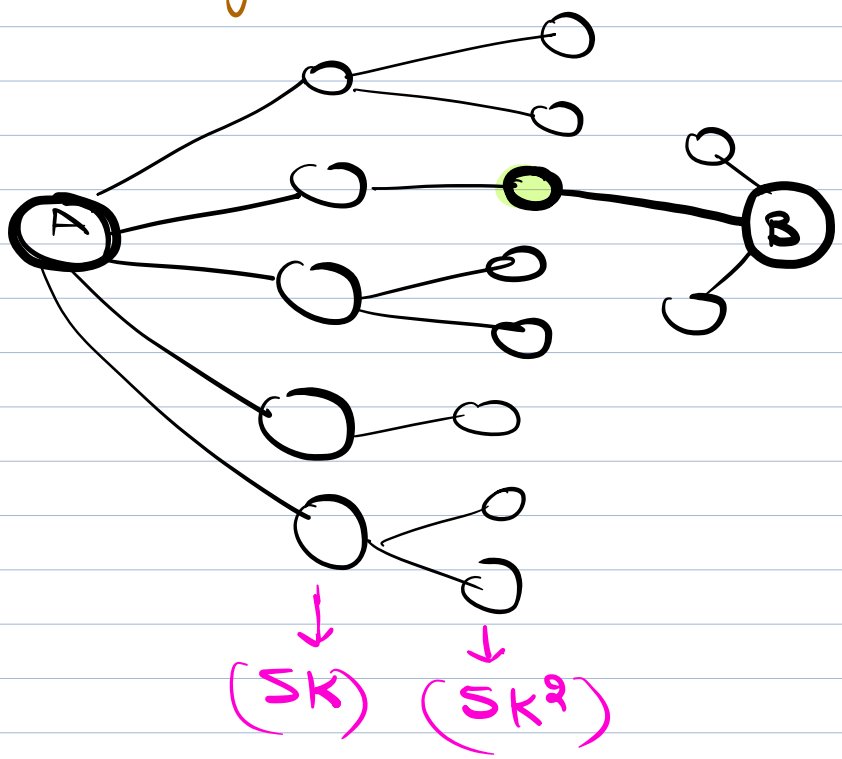
Java	C++	Python	JS/Ruby	C#
HashSet	unordered_set	set	Set	HashSet
HashMap	unordered_map	Dictionary	Map	Dictionary



→ N iterations.



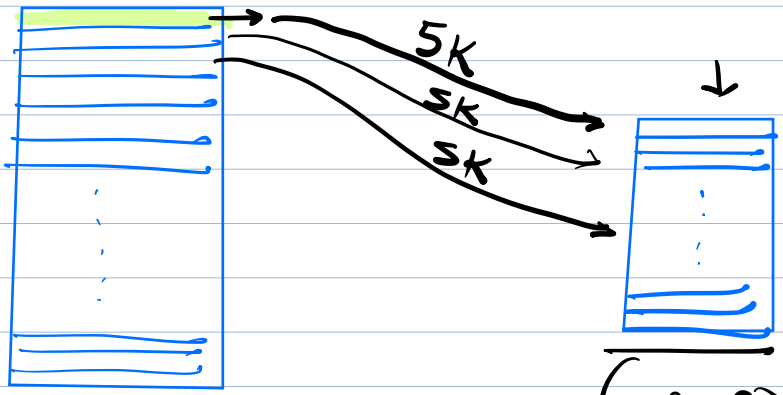
3rd Degree



→ If A & B are in 3rd degree connection

f(f(A)) & f(B) must have

atleast 1 profile in common



$f(f(A))$

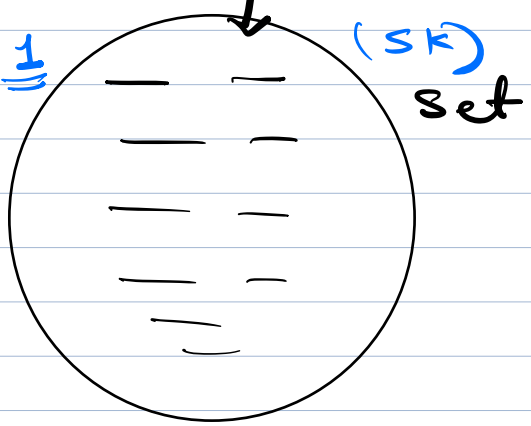
$(5K)^2$

25,000,000

$f(B)$

$(5K)$

$(5K)^2 \times (5K) = (5K)^3$

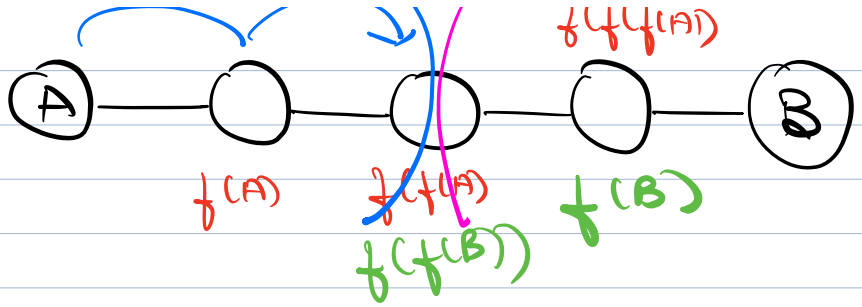


$(5K)^2 \times 1$

$= 5K^2$

0.25 sec + ~~0.00005 sec~~

4th degree



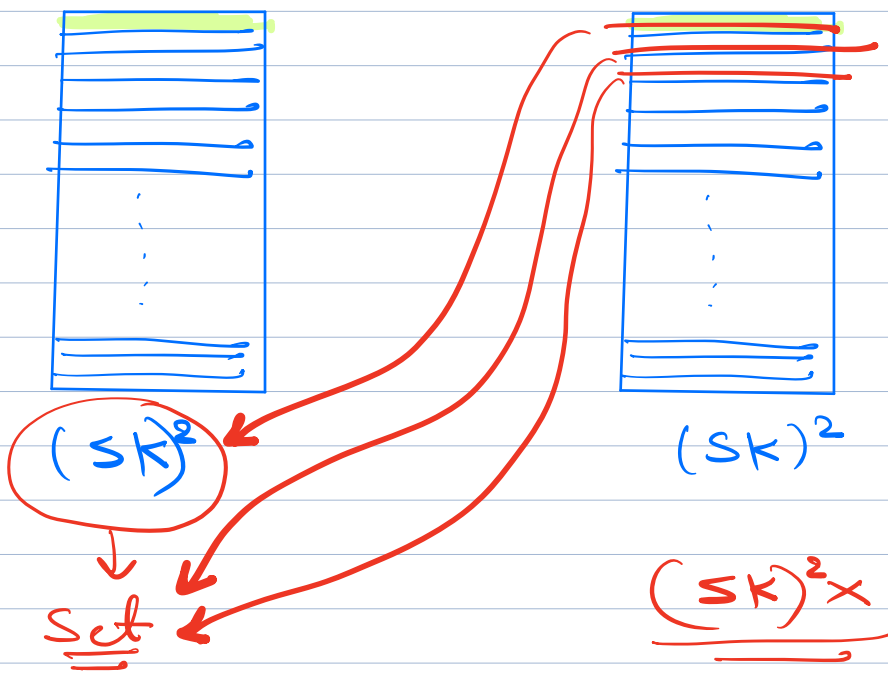
$f(f(f(A)))$ & $f(B)$

$(SK)^3$

×

$f(f(A))$ & $f(f(B))$

atleast one ele common



0.25 sec + 0.25 sec

$= 0.5 \text{ sec}$

Anshuman Singh