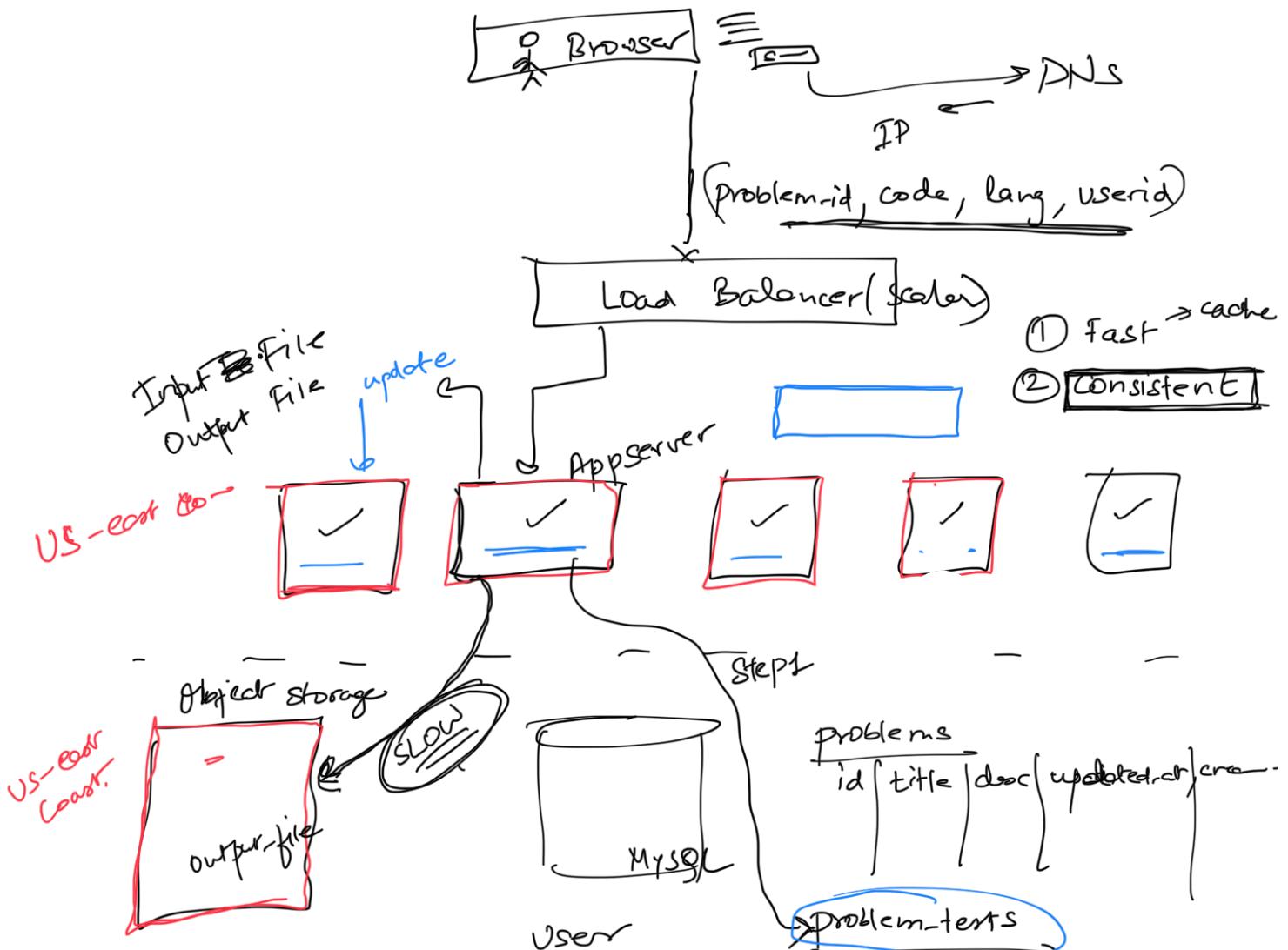
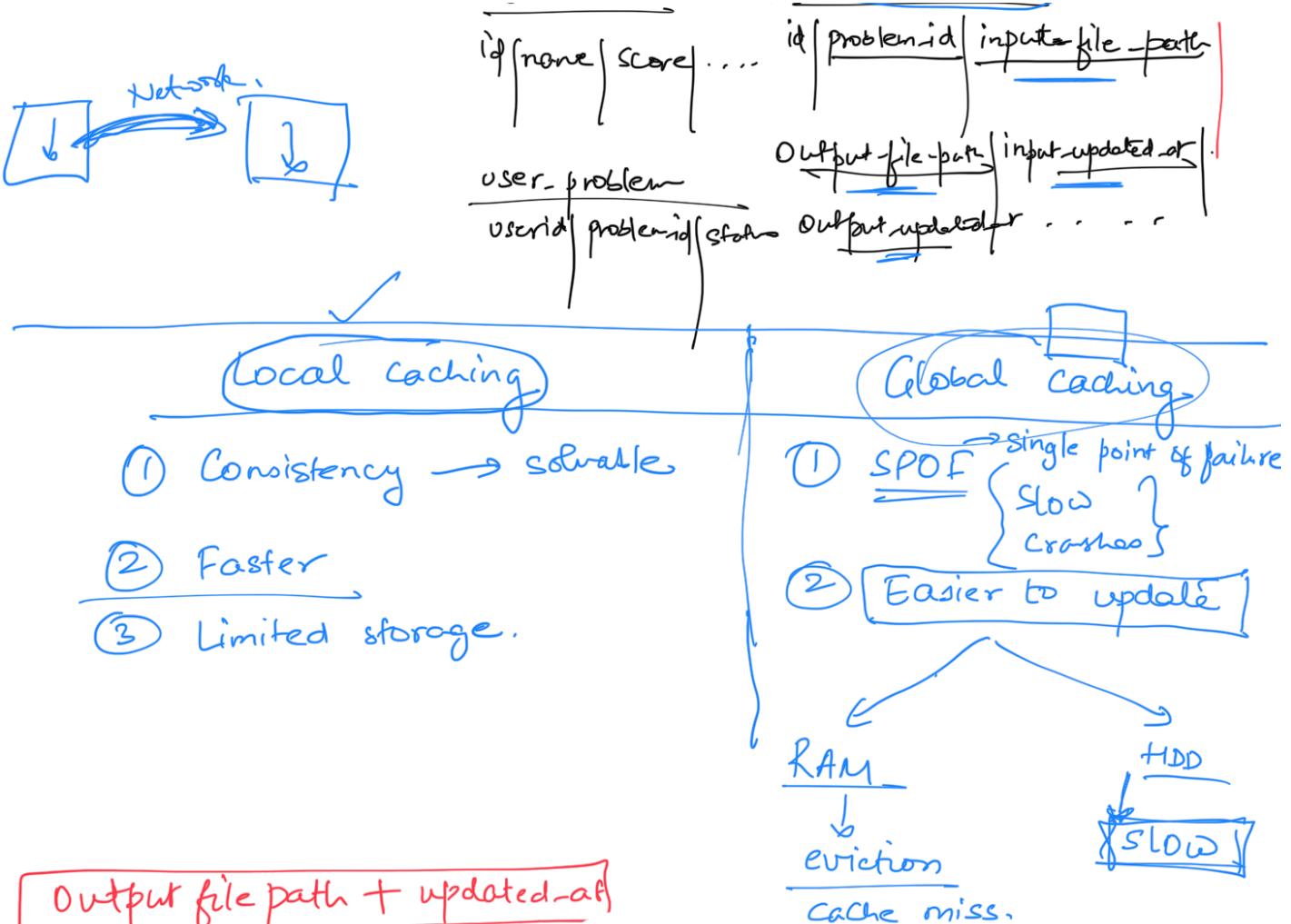


CACHING - 2

Problem :

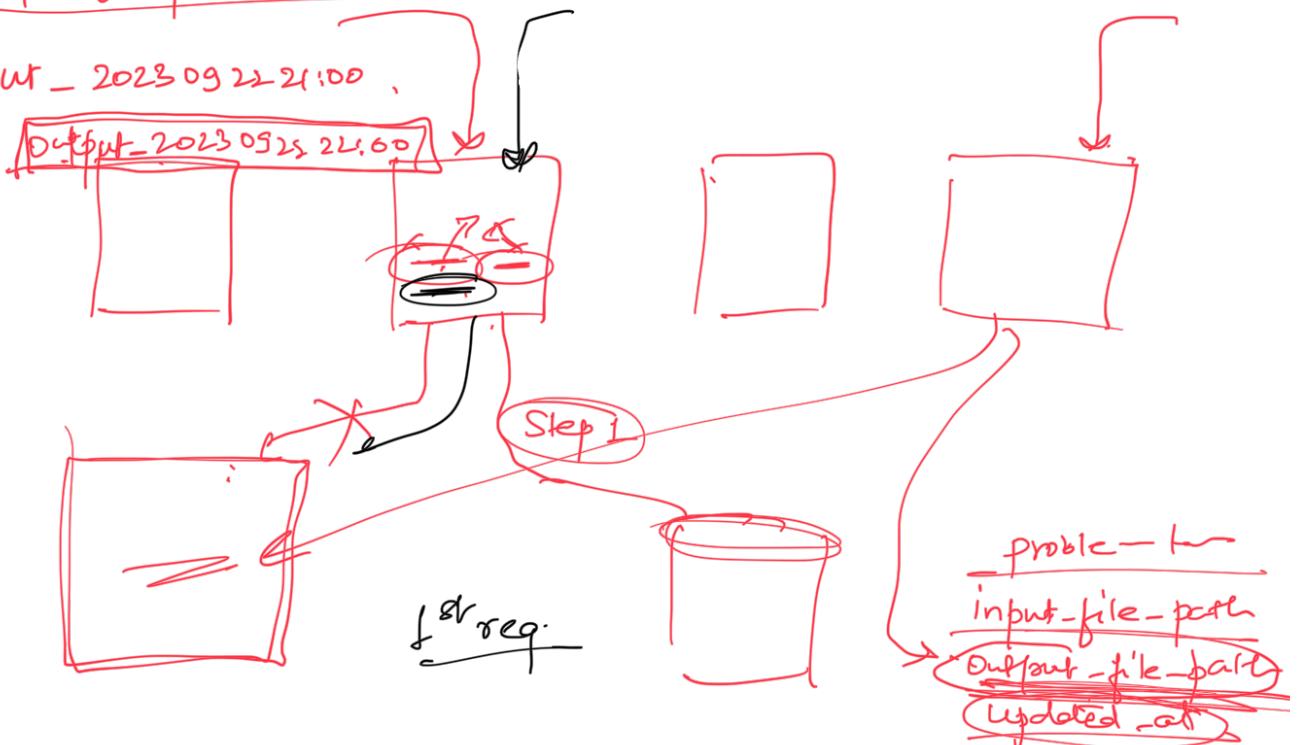
- Scaler code evaluation
- Appserver needs input file & output file to run submissions.
- They are heavy files.
- Fetching from object storage is slow
(200-600ms latency)
- How do we cache?
- How do we invalidate?

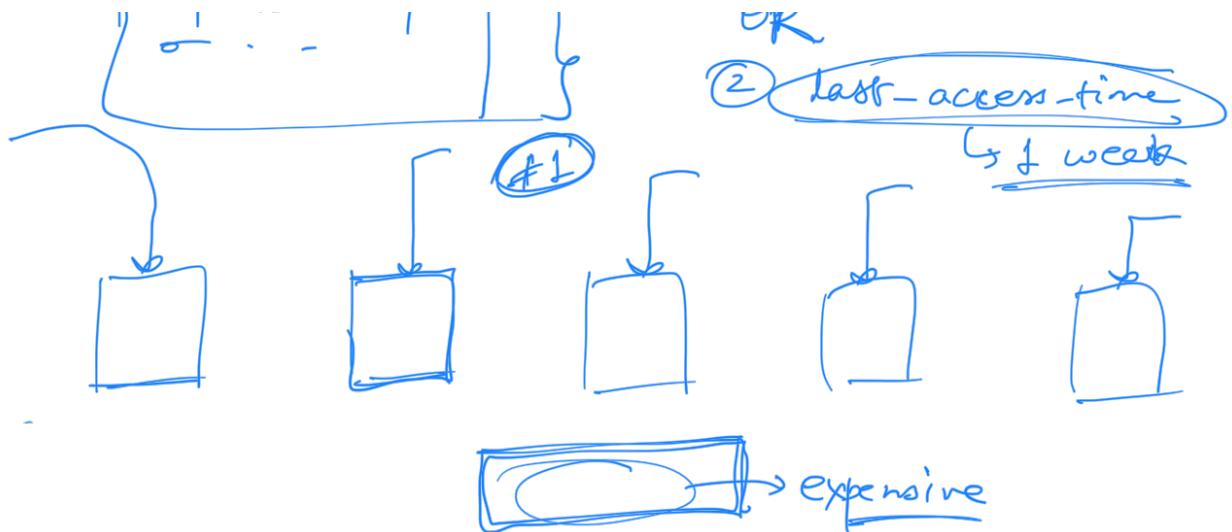




Output file path + updated-at

Output - 2023 09 22 21:00 .

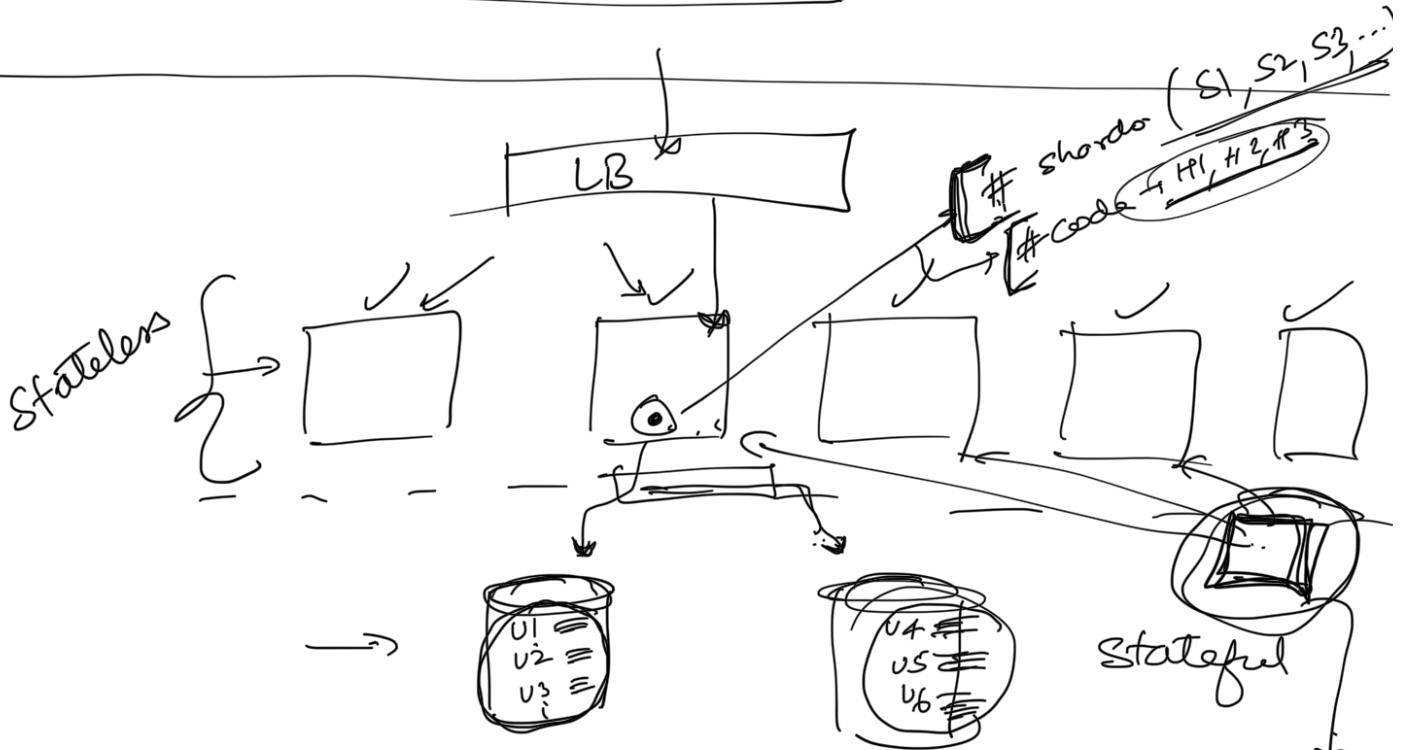


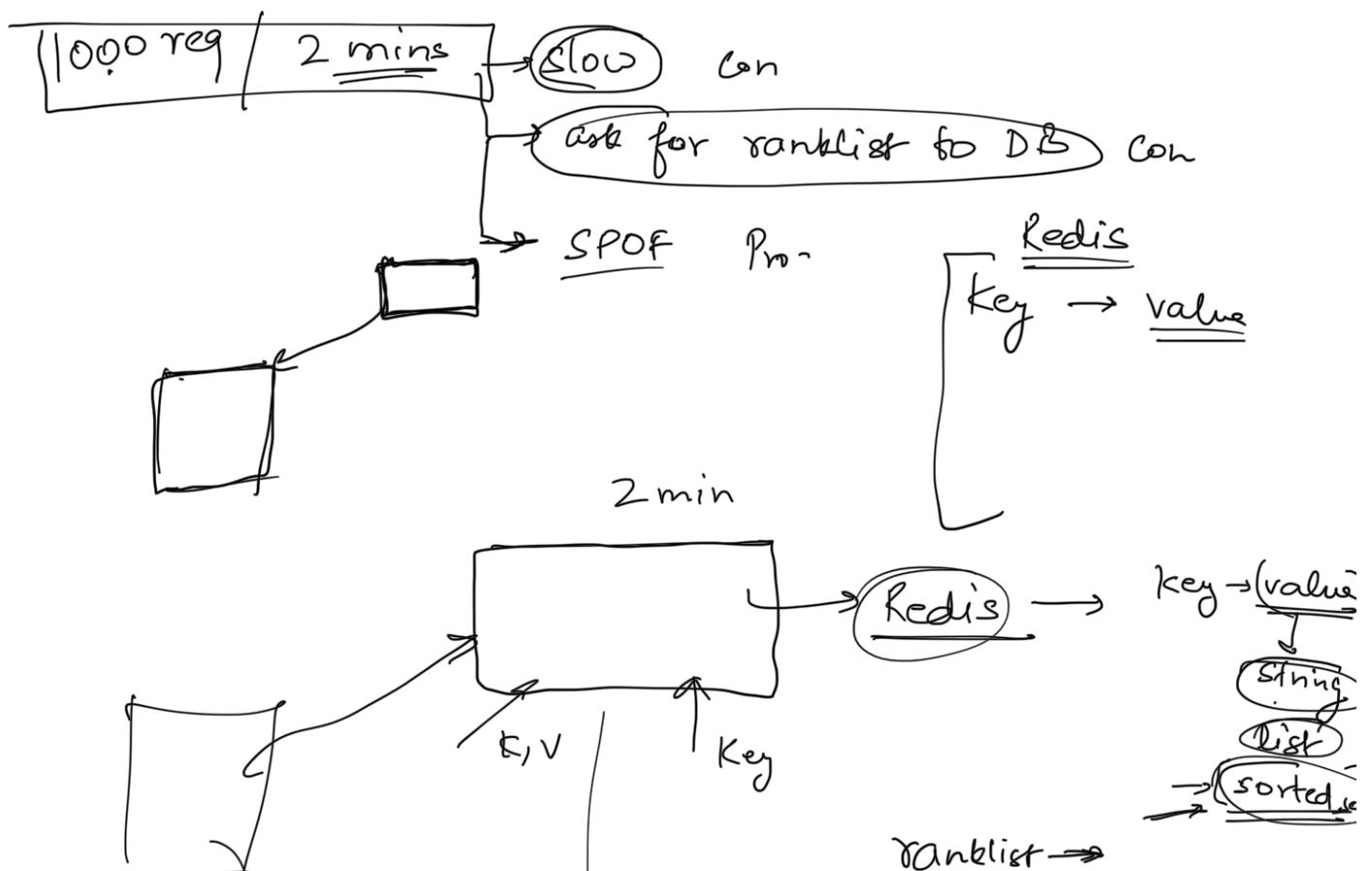
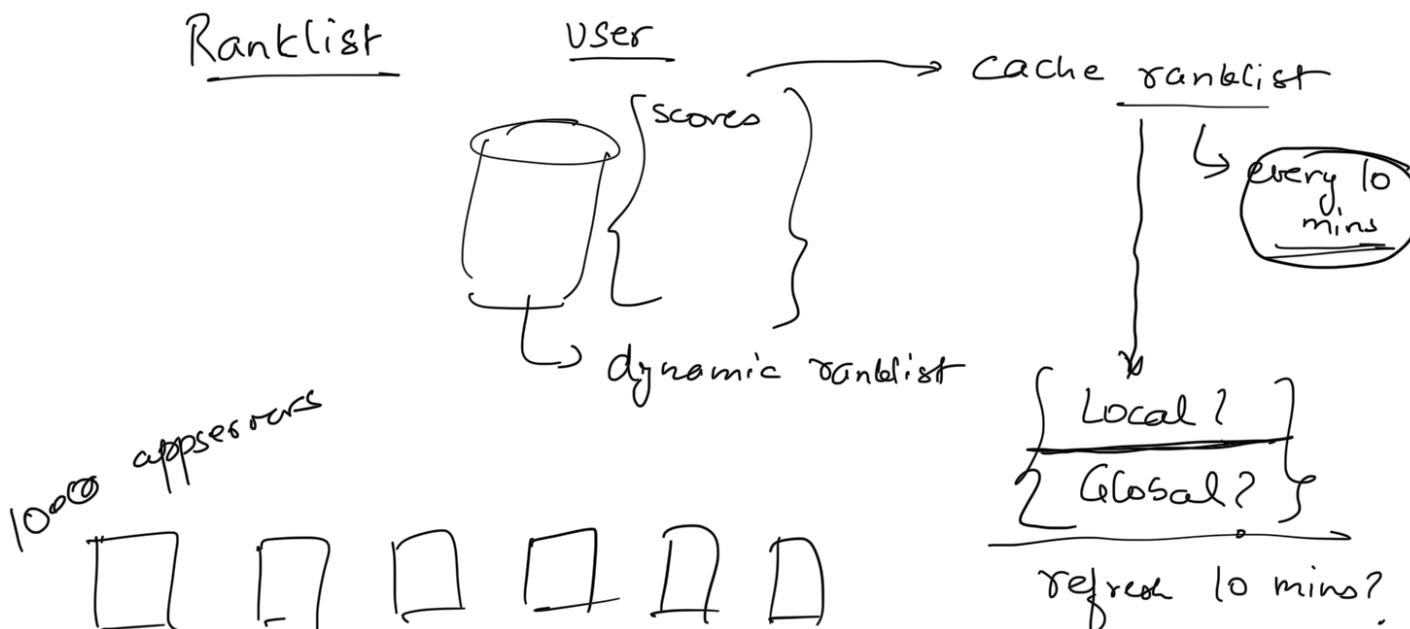
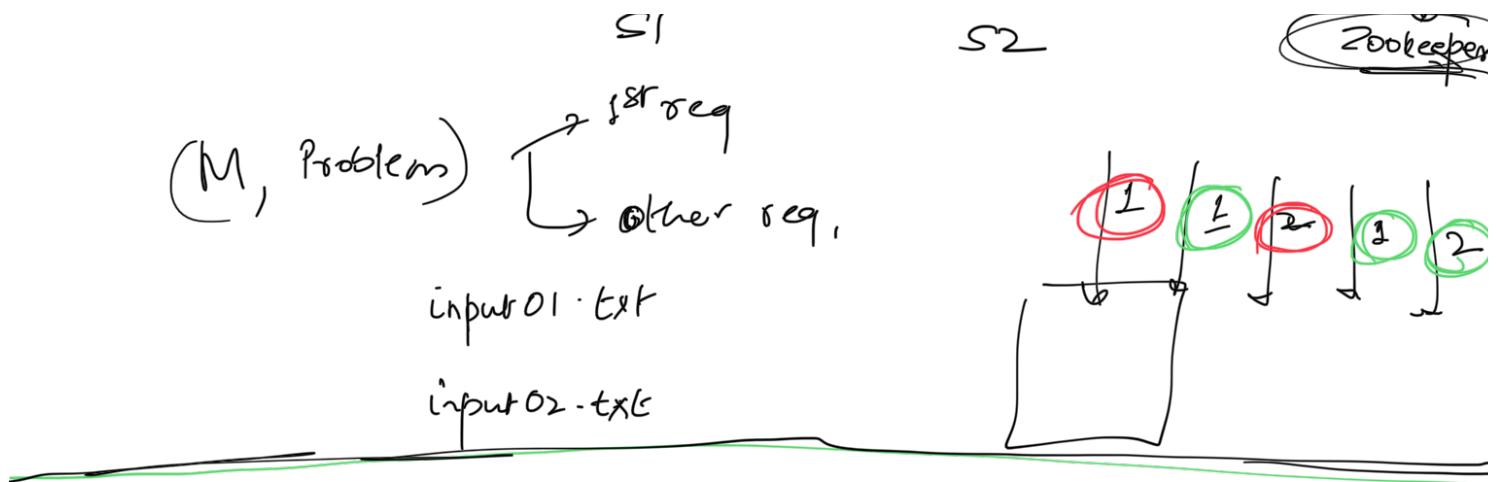


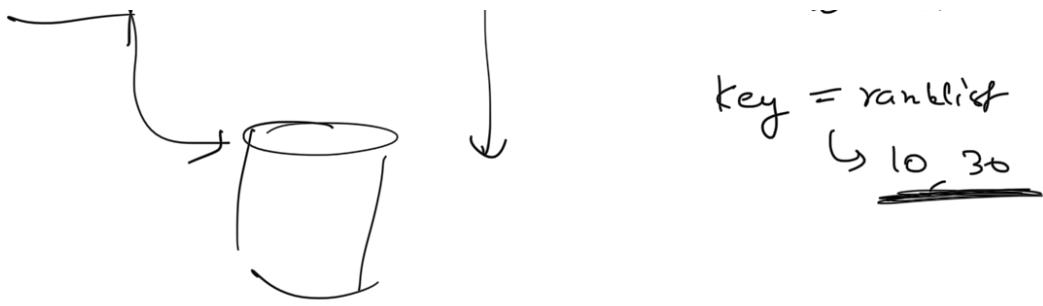
Stateless

- ① How to read a file given file path.
- ② How to write to a file give file path → append/overwrite/new
- ③ How to list all files given a directory path

/usr/local/files/...
OS-system(- - -)







Cache hit rate

user_id → Score

key → value

[10:35 pm]

hit

miss

present

not present

$$\text{time-taken} = T_1 + T_2$$

(T₂)

if (cache.get(user_id) != NULL)

T₁

score = cache.get(user_id);

} else {

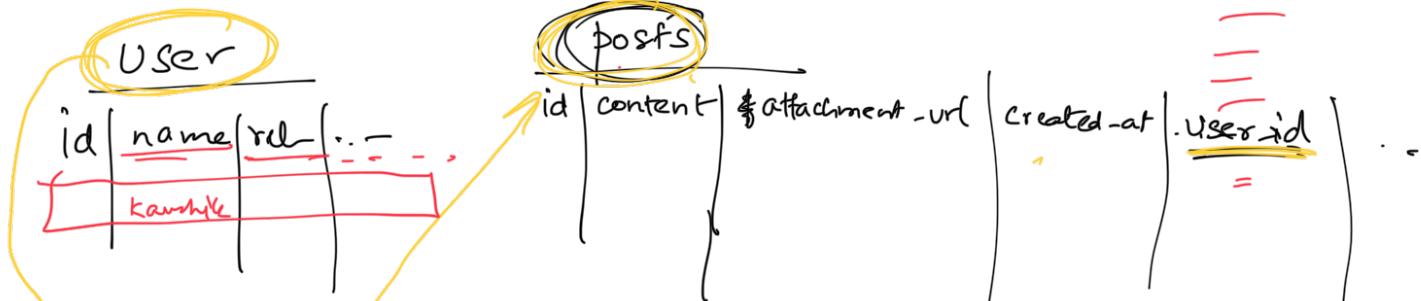
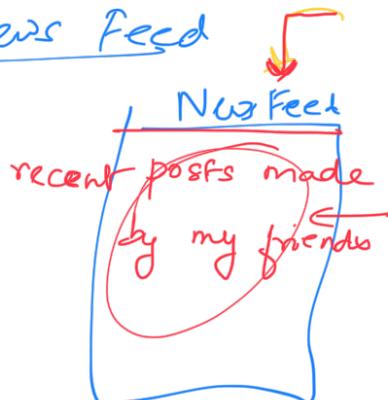
T₂

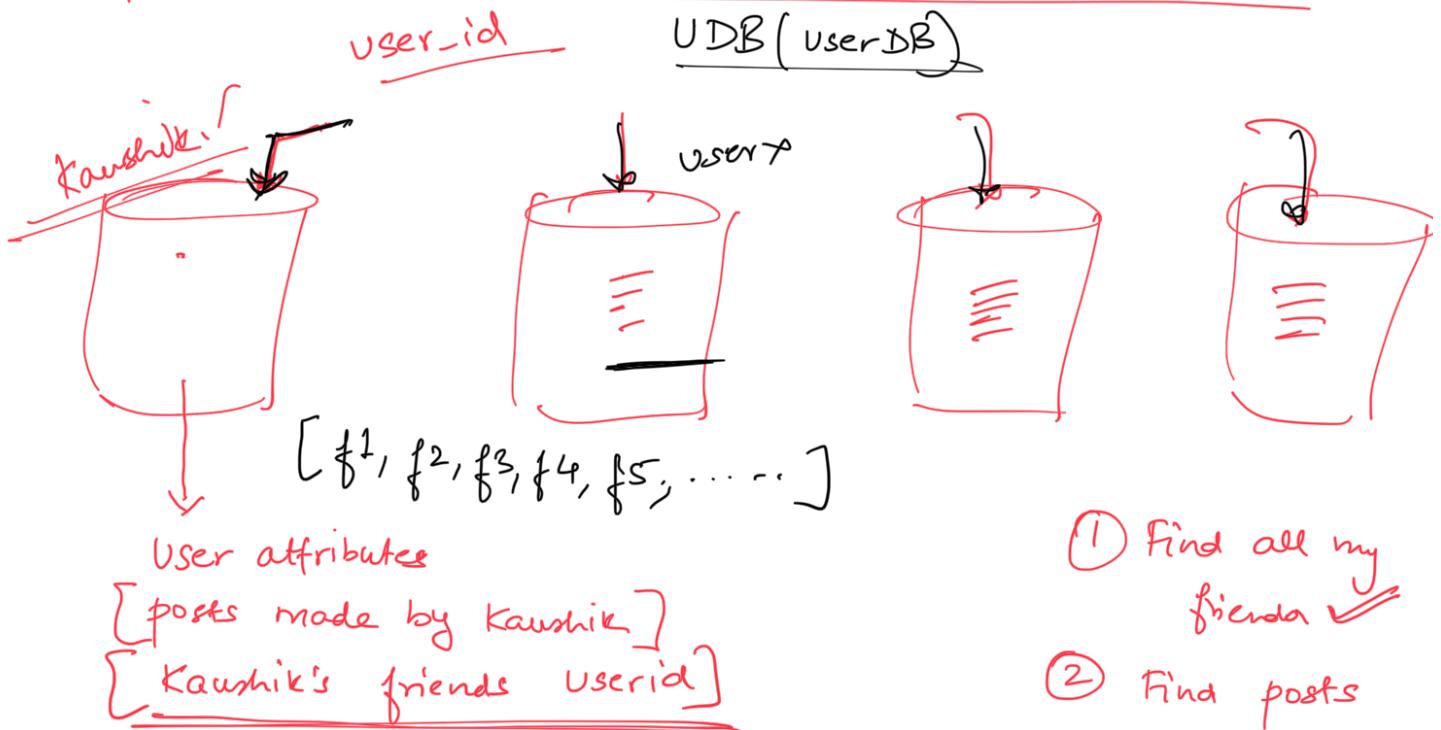
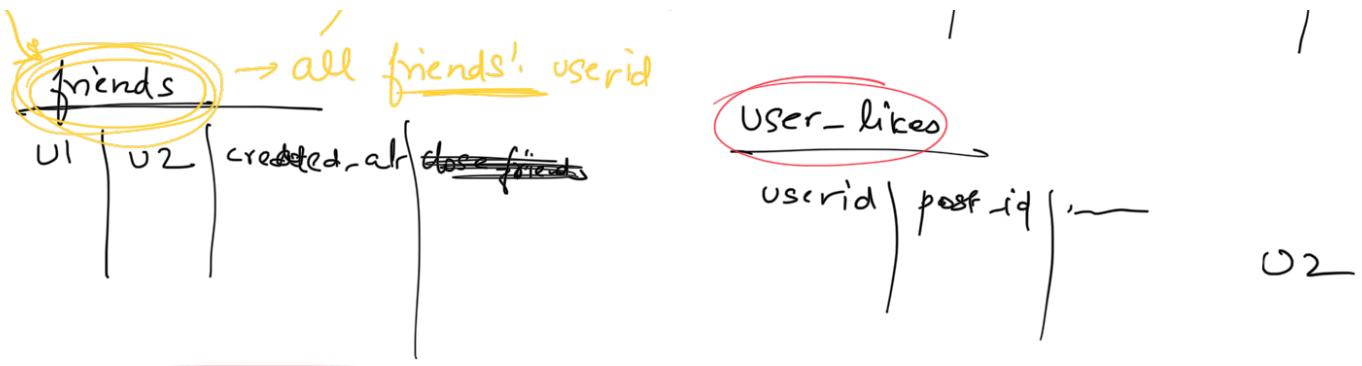
score = dfp.find-score(user);

}

Facebook News Feed

user_id = 10





- ① Find all my friends ✓
- ② Find posts made by my friends - ↗
slow

DAU → 1 Billion → 10^9

↓

10 million → 3-5 posts.

($1 = 20, 80$)

posts

50 million posts / day.

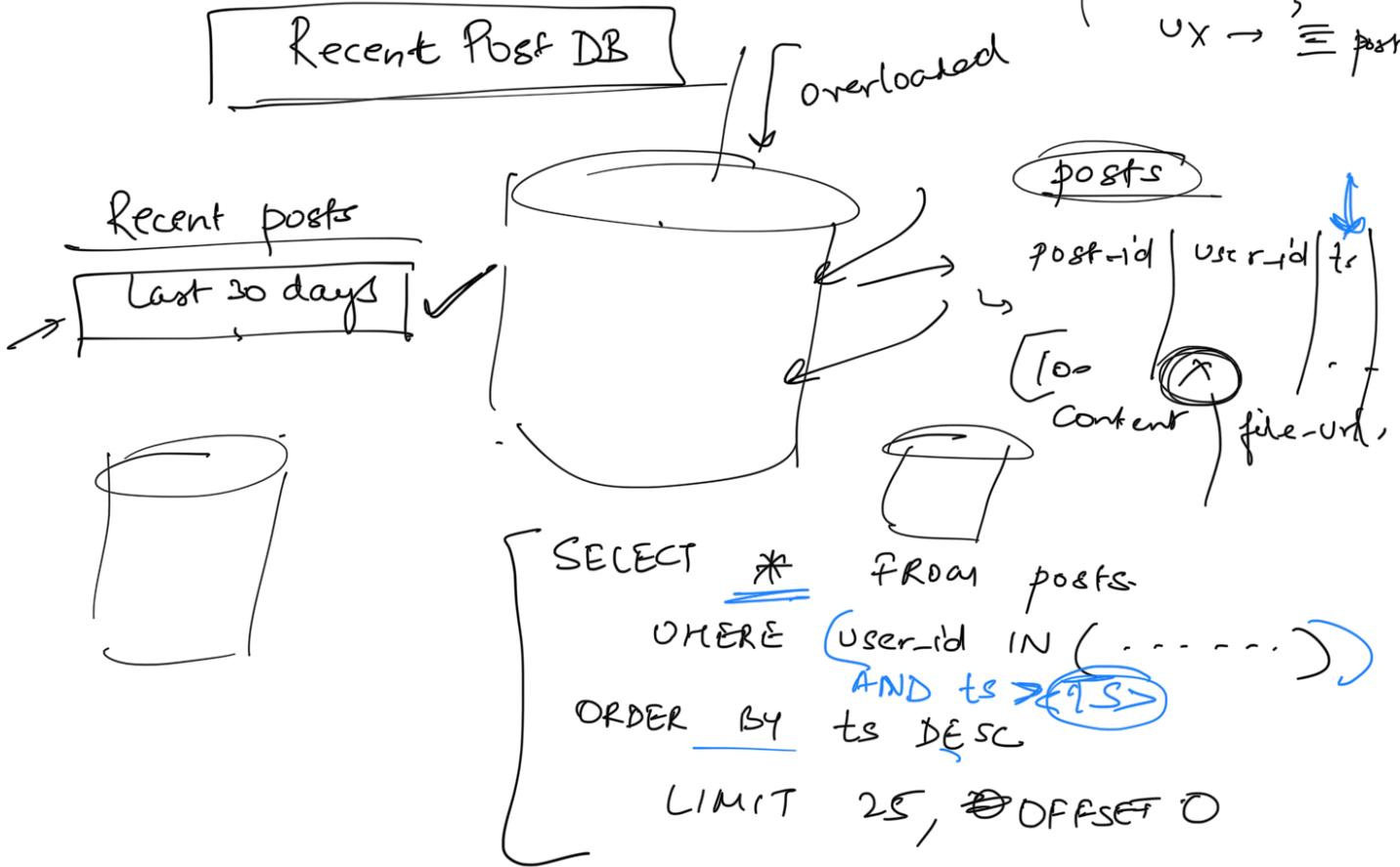
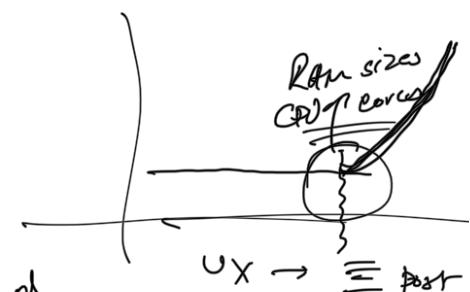
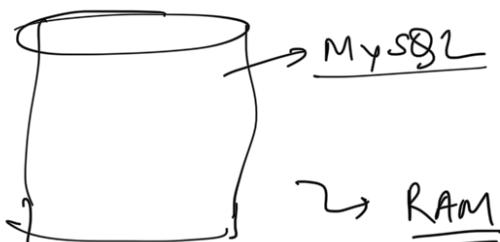
text → text → 100 characters

Multi-media → cdn-url + 100-200 characters.

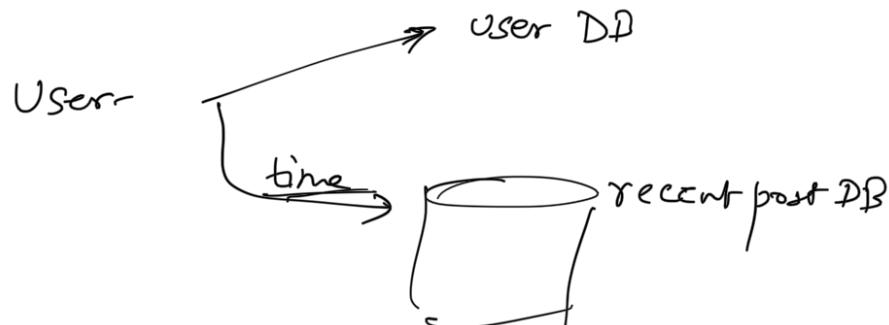
500 bytes * 50 million MB < 500 characters
1 byte.

$$\begin{aligned}
 &= \frac{25 \text{ GB}}{500 * 50 \text{ MB}} = \frac{25 * 1000 \text{ MB}}{500 * 50 \text{ MB}} = \frac{5 * 5 \text{ GB}}{5 * 5 \text{ GB}} = 25 \text{ GB}
 \end{aligned}$$

$$25 * 30 = 750 \text{ GB} \quad \begin{array}{l} \xrightarrow{\text{RAM}} \times \\ \xrightarrow{\text{HD}} \checkmark \end{array}$$



News Feed ↗ consistency → Not Imp.



News Feed → FB feed

Q1. WILL THE LOAD ON RECENT POST DB BE VERY HIGH? IF YES, HOW TO MANAGE?

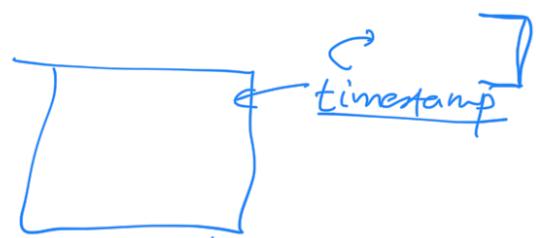
Q2. HOW DO I KEEP REFRESHING NEWS FEED FAST?

① Replicas → 1000s of replicas

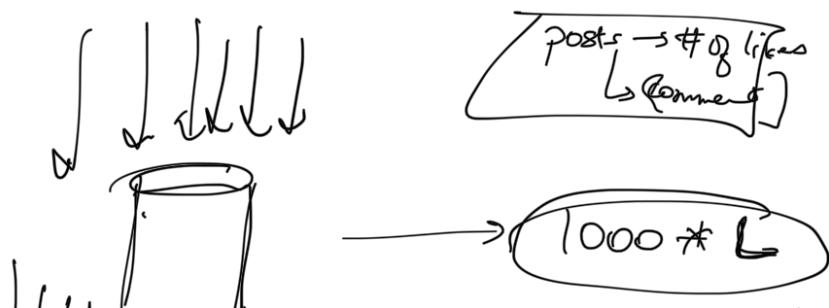
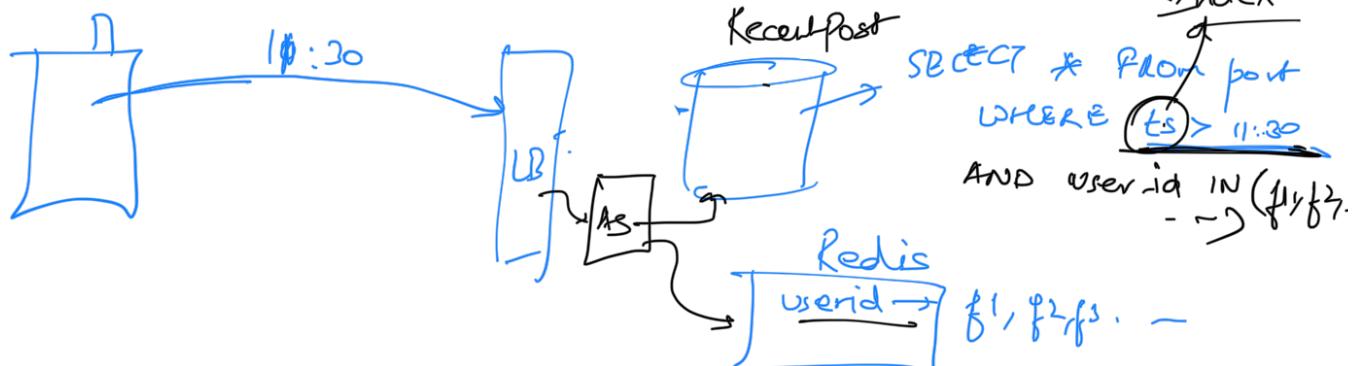
? ↗ LB

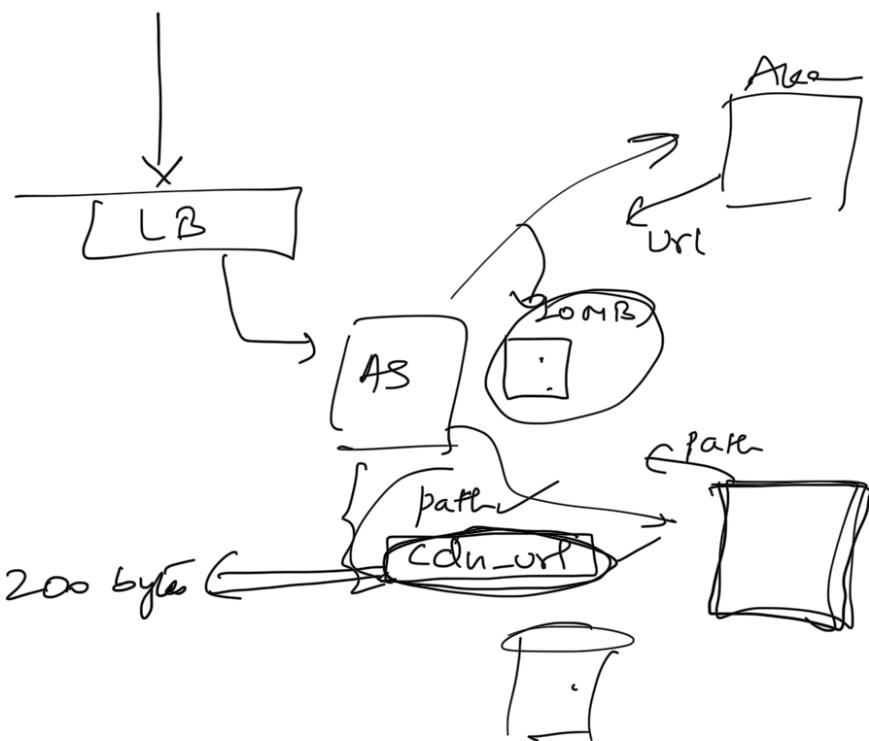
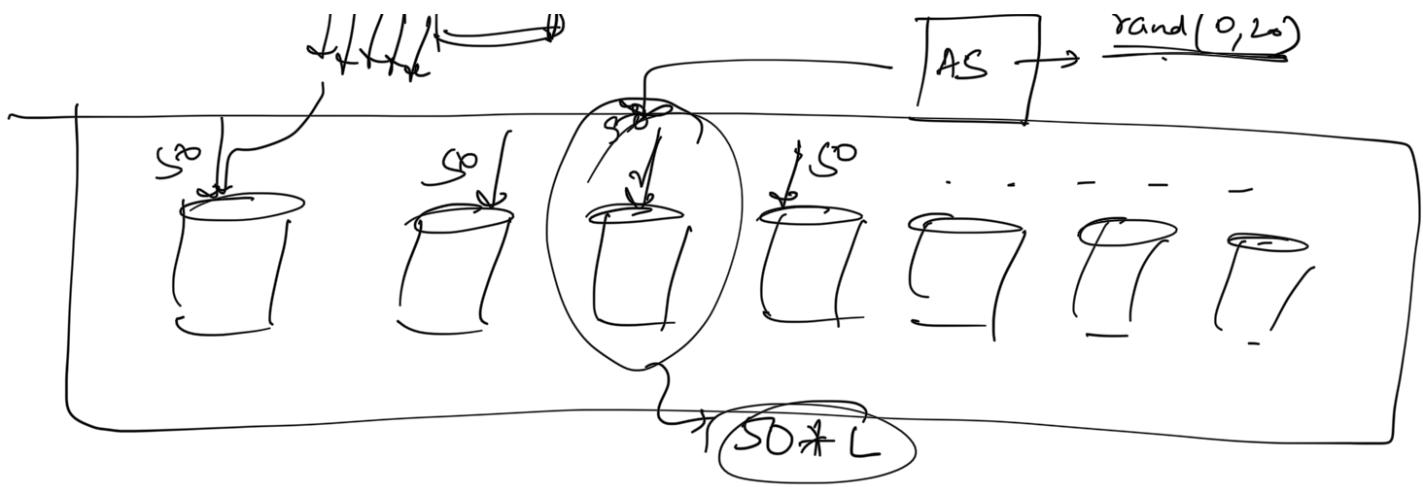


→ delta-fetch

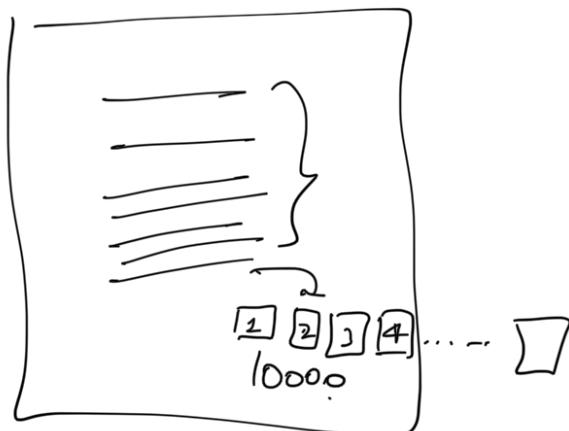


getMessages(userid, ..., ts)





Leetcode → \$0,000 problems



list of friends
↓
posts made by them

