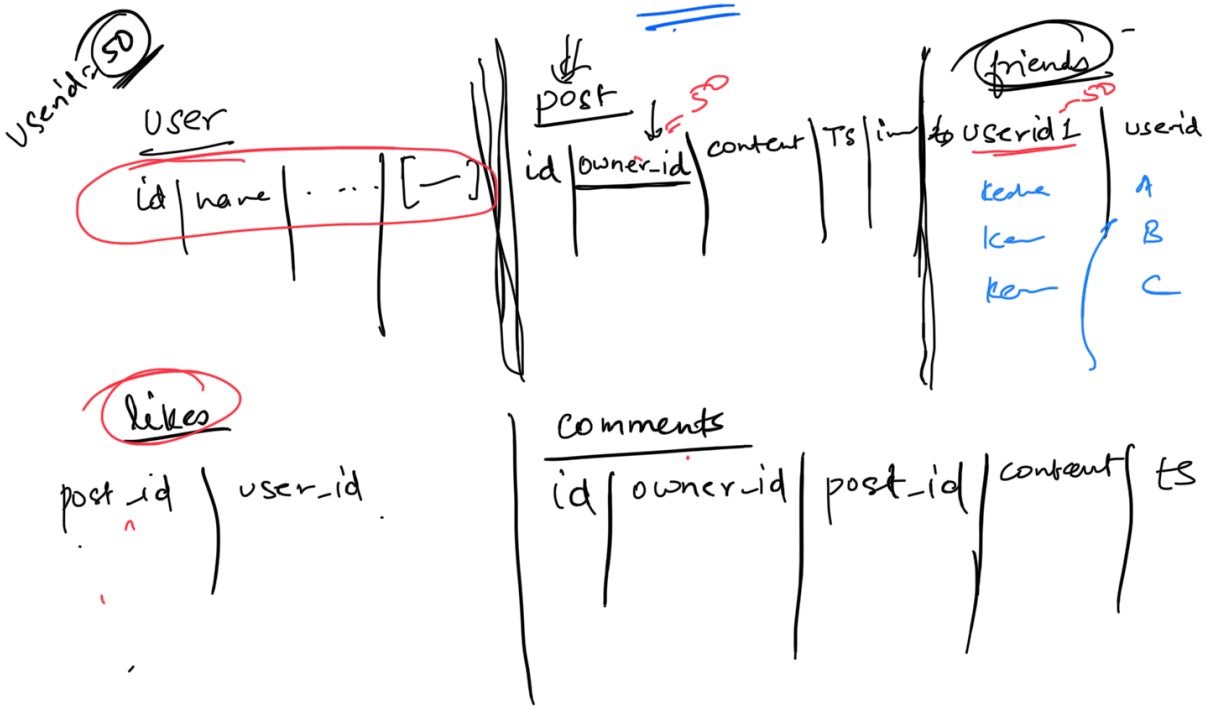
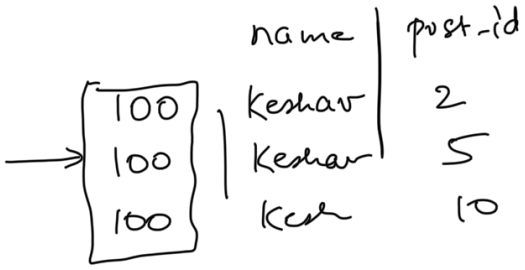
SYSTEM DESIGN - III





User → post
1 many
post → user
many 1

SELECT * FROM posts WHERE ownerid IN
(SELECT user_id2 FROM friends
WHERE user_id1 = 50)

300 million DAU

30 Million posts per day

500 bytes * 30 * 1000 *

= 500 * 30 MB

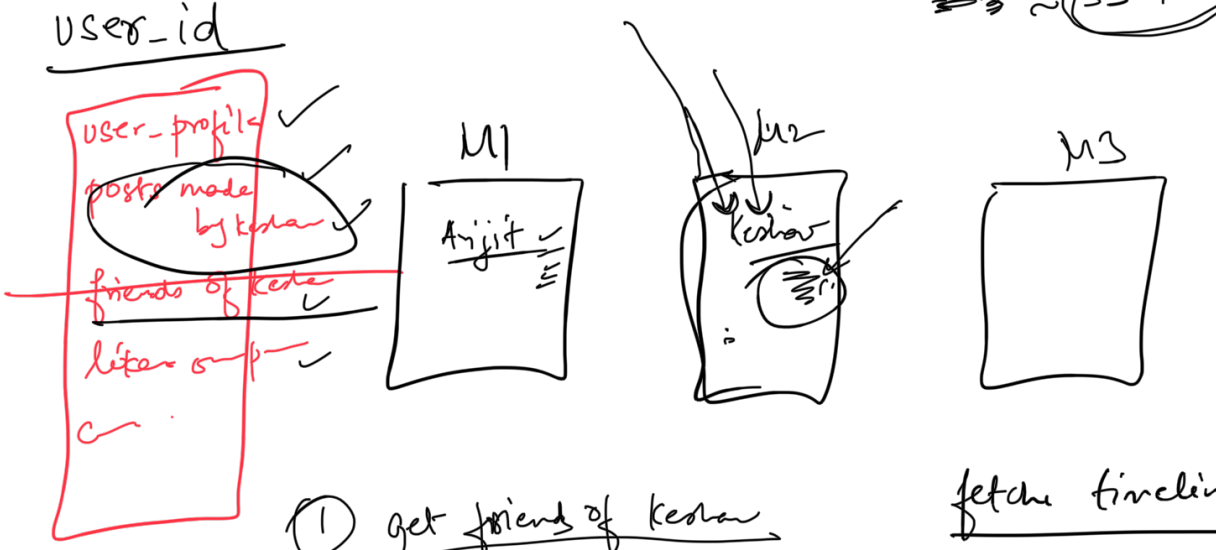
= 15 GB

15GB * 365 *

15GB posts/day

= 54, 750 GB

⇒ ≈ 55 TB

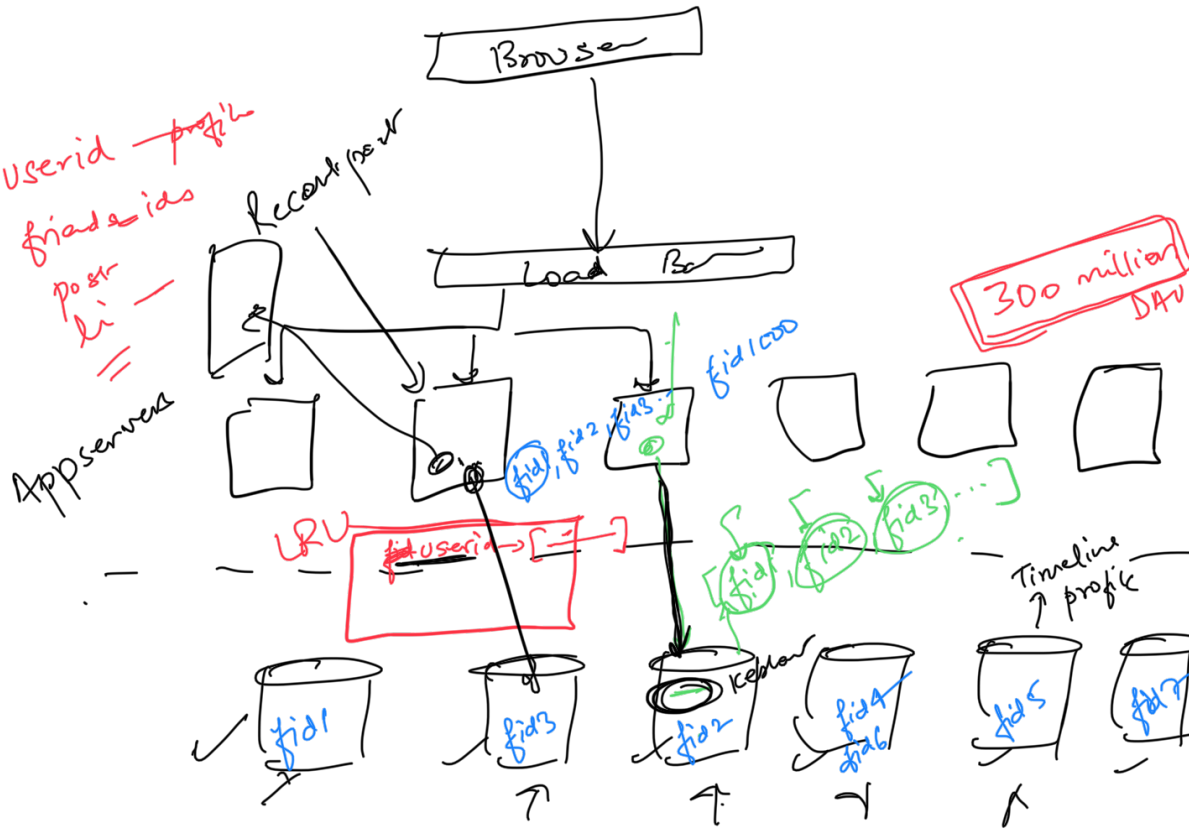


① get friends of kedar

② Find posts made by those friends

fetch timeli

fetch profile in



① how many users does FB have

↑ 2Billion

2 Billion * 1000 friends * 8 byte

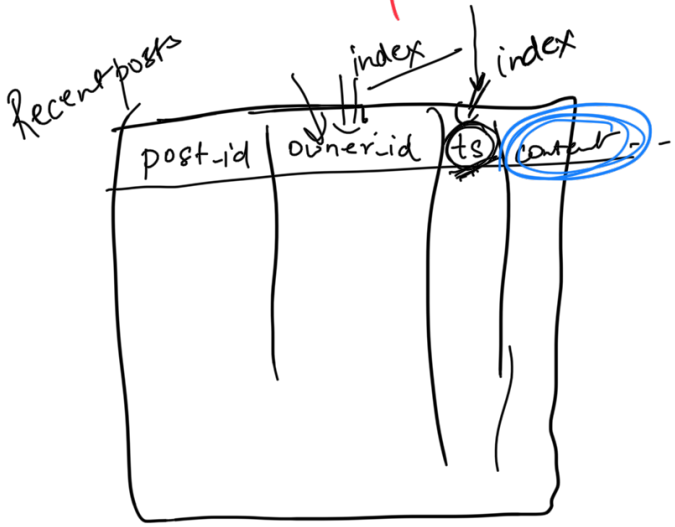
= 2000 * 8 GB = 16 TB

① fetch friend list

② for each friend:
fetch recent posts.

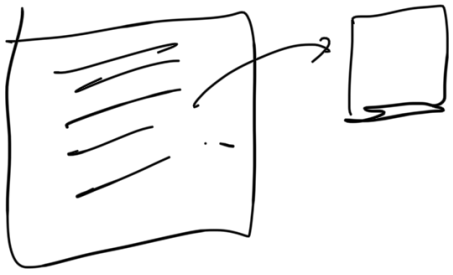
15GB / post | 15GB * 30 = 450GB

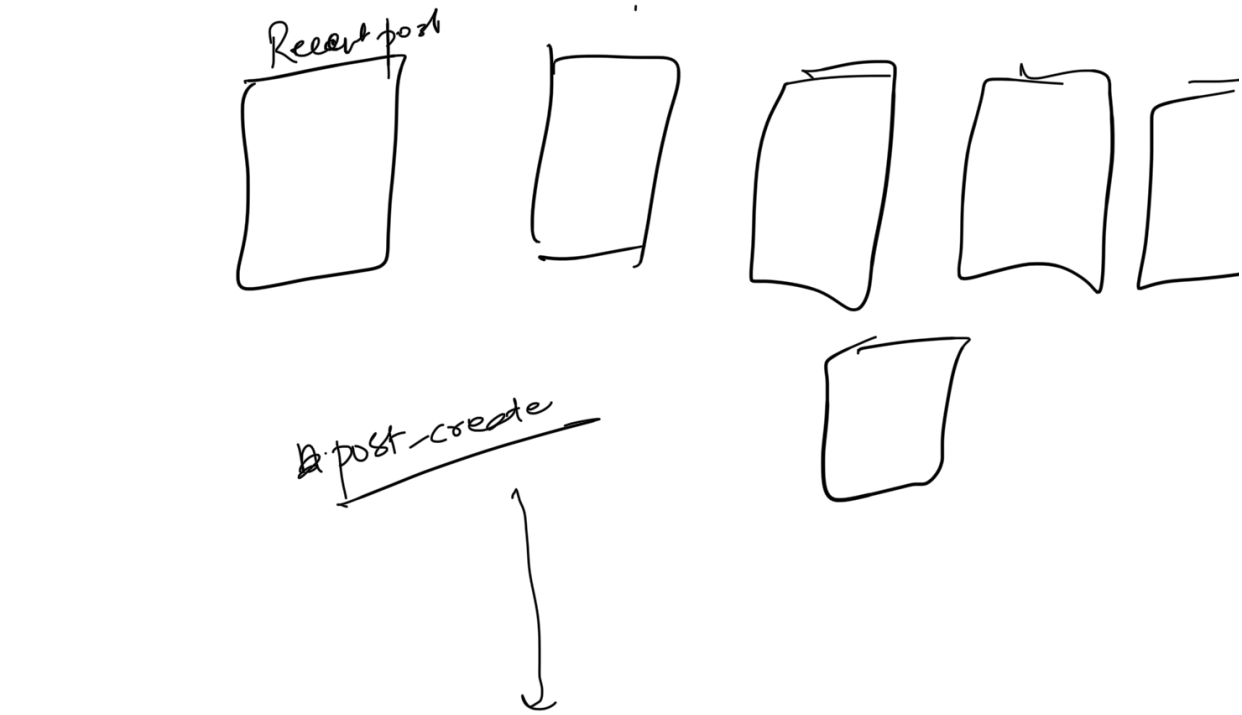
RAM ✗ HD



① fid1, fid2, fid3 ... fid100

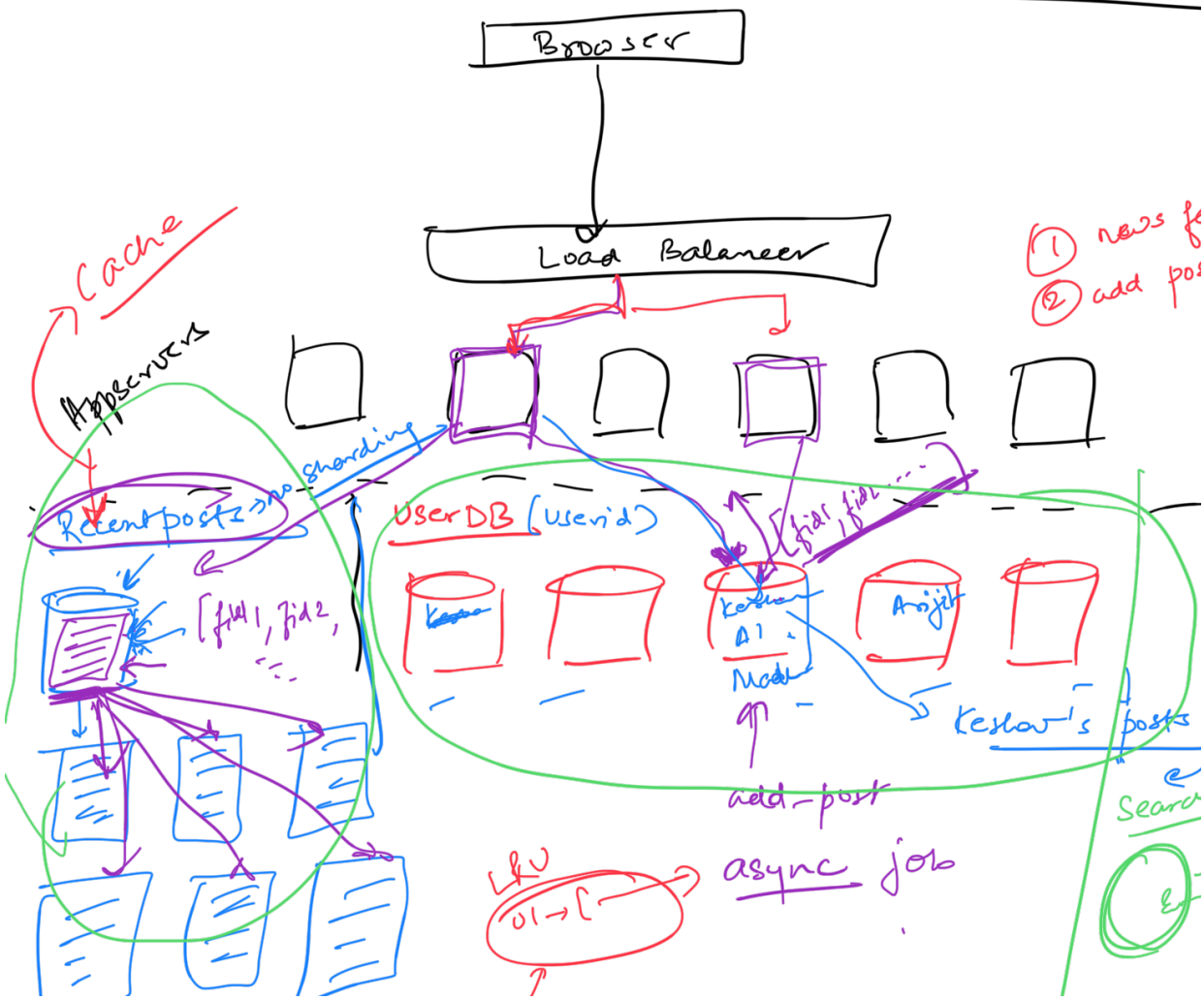
```
SELECT * FROM recent_posts WHERE
owner_id IN (fid1, fid2 ... fid100)
LIMIT 20
```





Main DB based on user

Async : — Recent ~~DB~~ posts DB



① User DB, fetch friends list

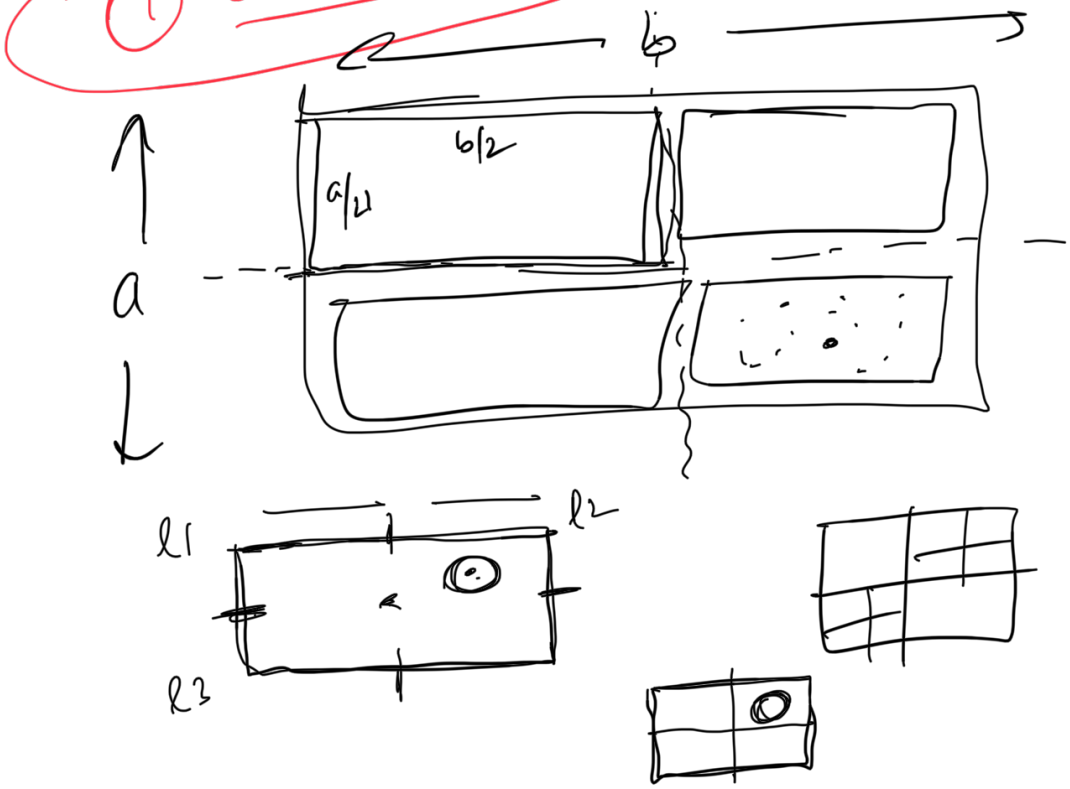
U1 → [f1, f2, f3, f4, ...]

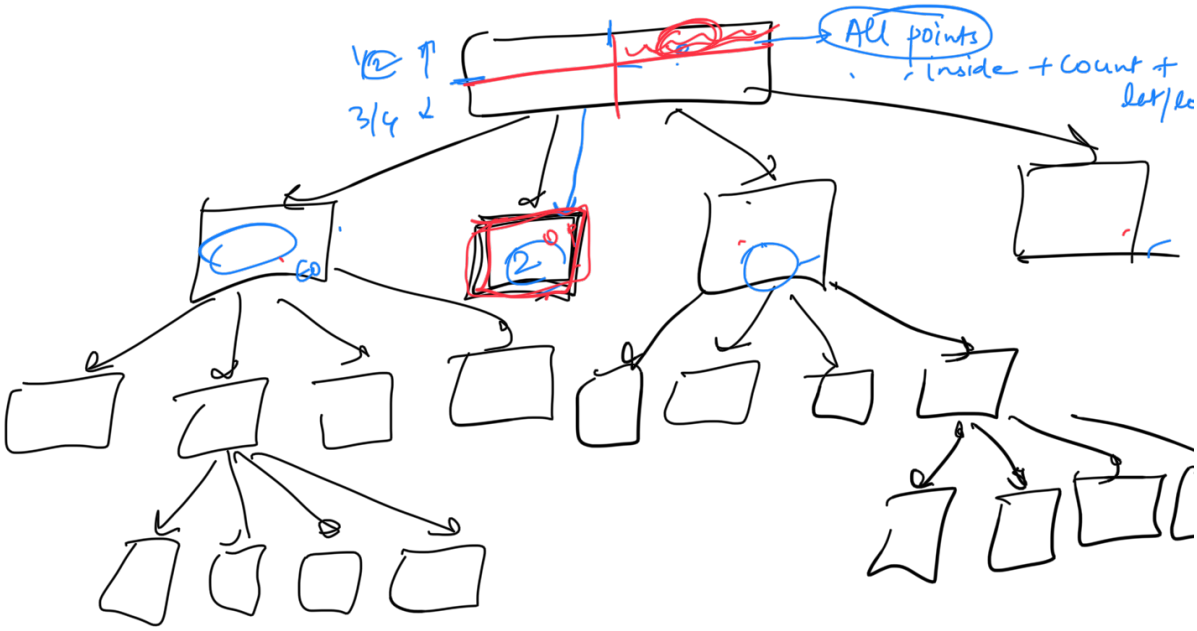
② SELECT * FR —

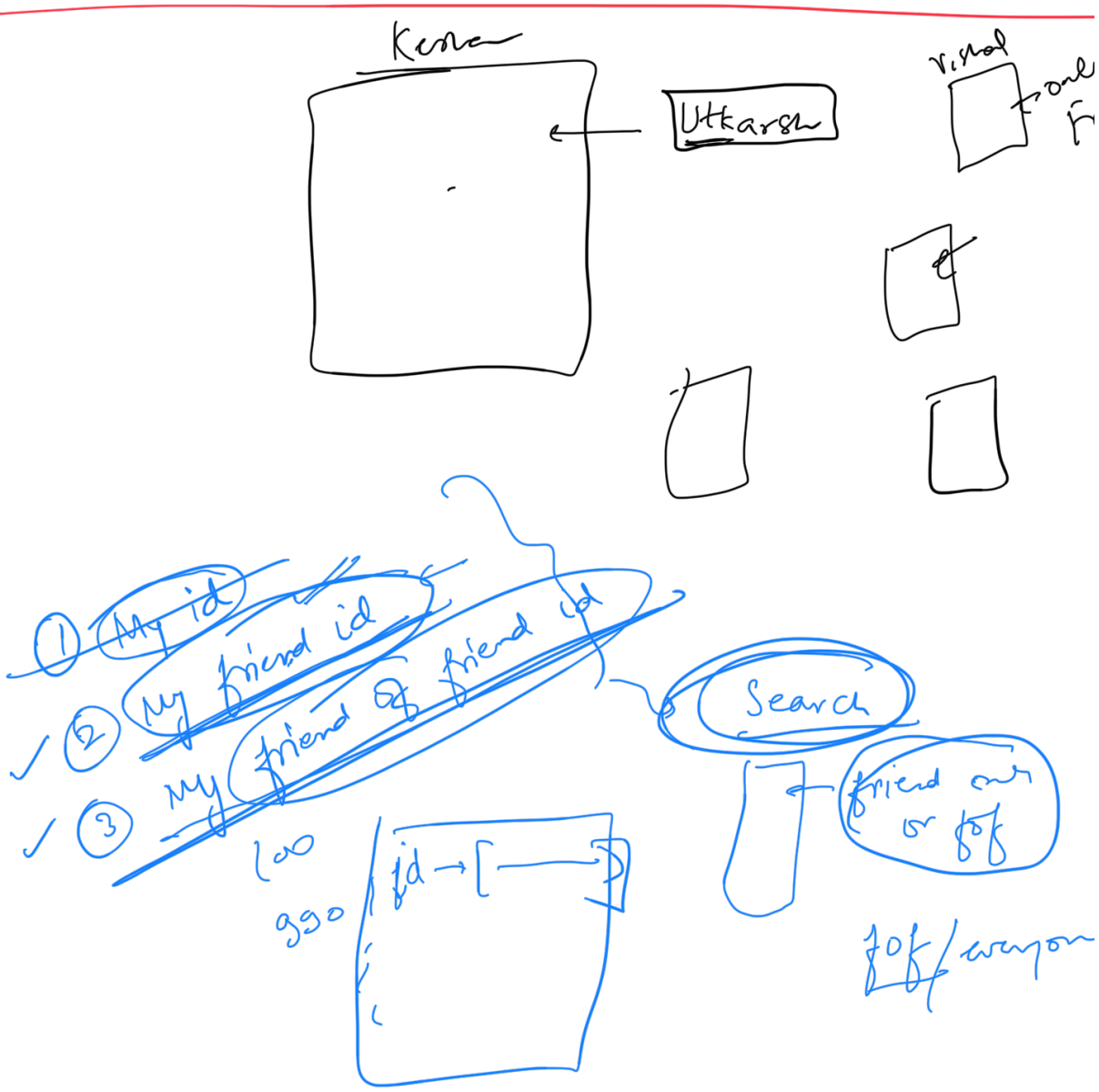
WHERE ownerid IN

(f1, f2, f3, ...

① Derived data







Keshav

profile

friend ids

posts made by

post_id → [userid1,