* Merge k Sorted Lists

N - total # of nodes
k - # of linked lists.

[1→2→3→5,
2→4→6,
7→10,
2→6.]

⇒ 1→2→2→2→3→4→5→6→6→7→10

O(N log N)
O(N) 1) Add to a List & sort

O(kn)
O(n) | O(1) ← inplace
2) Compare one by one each list in array
create a new list

3) Priority Queue - min heap

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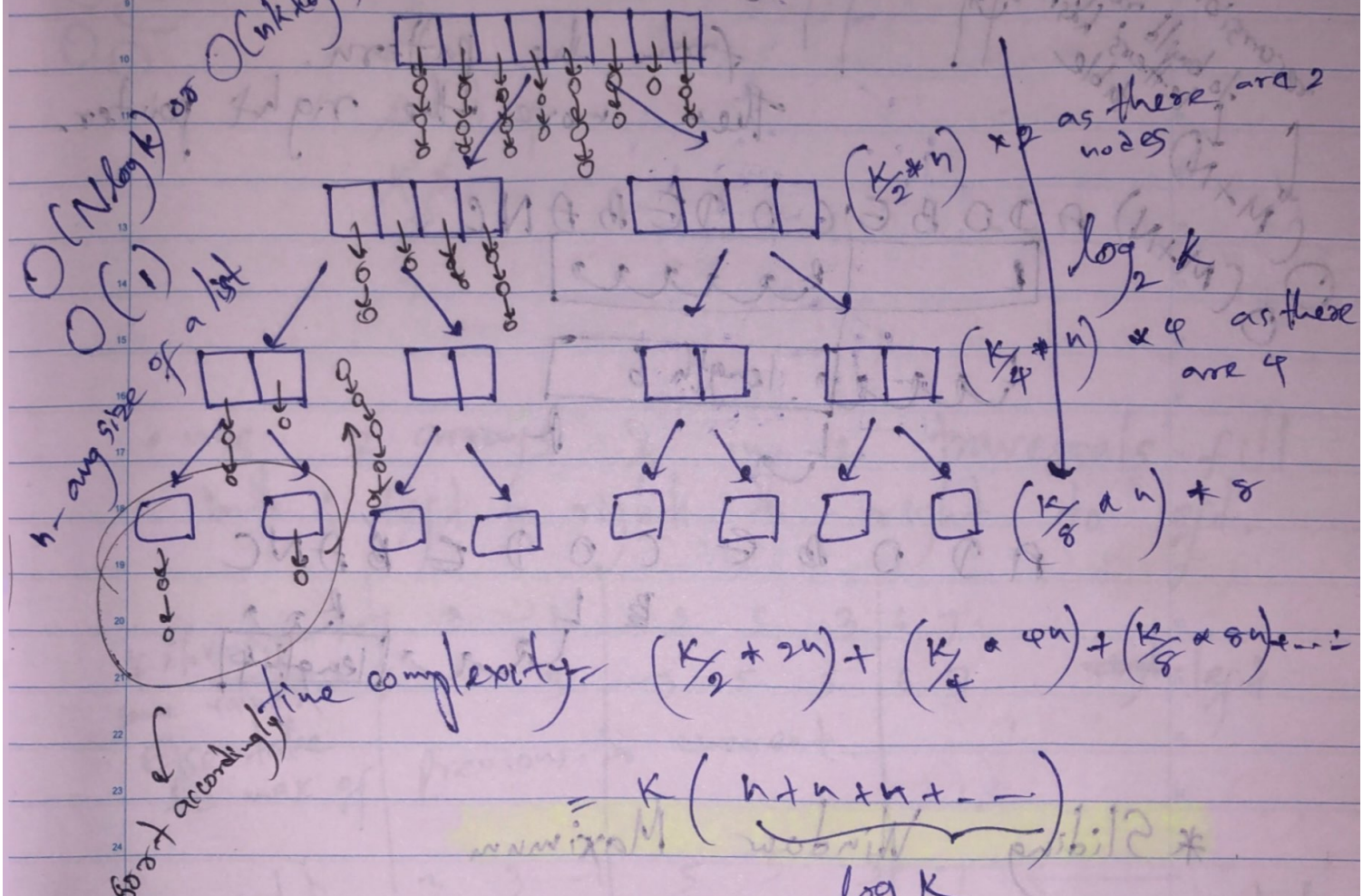
$O(N \log k)$ add all first nodes if not null. Then
$O(k)$ keep popping & pushing next of popped.
to store in pq

4) Merge with Divide & Conquer

$O(Nk \log k)$ or $O(nk \log k)$

$O(1)$



time complexity $= \left(\frac{k}{2} * 2n\right) + \left(\frac{k}{4} * 4n\right) + \left(\frac{k}{8} * 8n\right) + \ldots$

$= k\left(\underbrace{n + n + n + \ldots}_{\log k}\right)$

$= nk(1 + 1 + \ldots)$

$= nk \log k$