

Heaps Class-3

Special class

→ Merge K - sorted Arrays

single sorted
array

min-heap

arr₁

1 | 5 | 10 | 15 | 20 | 25

arr₂

2 | 4 | 8 | 12 | 16 | 20

arr₃

3 | 6 | 9 | 12 | 15 | 18

⋮

arr_k

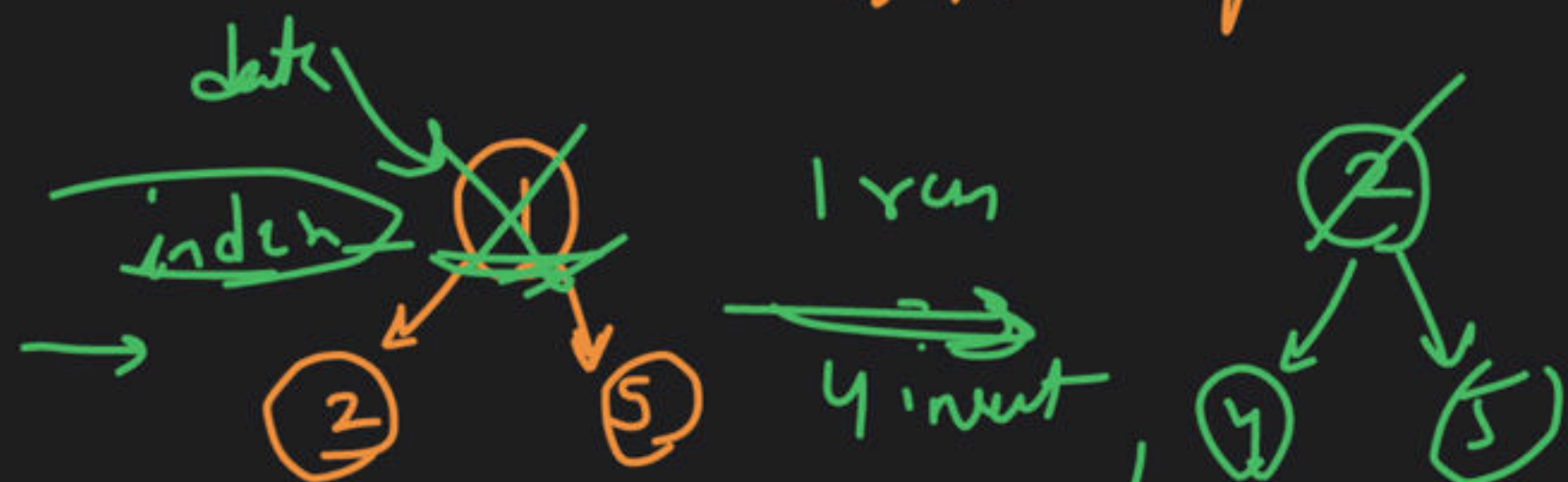
8 | 16 | 20 | 25 | 34 | 45

n-size

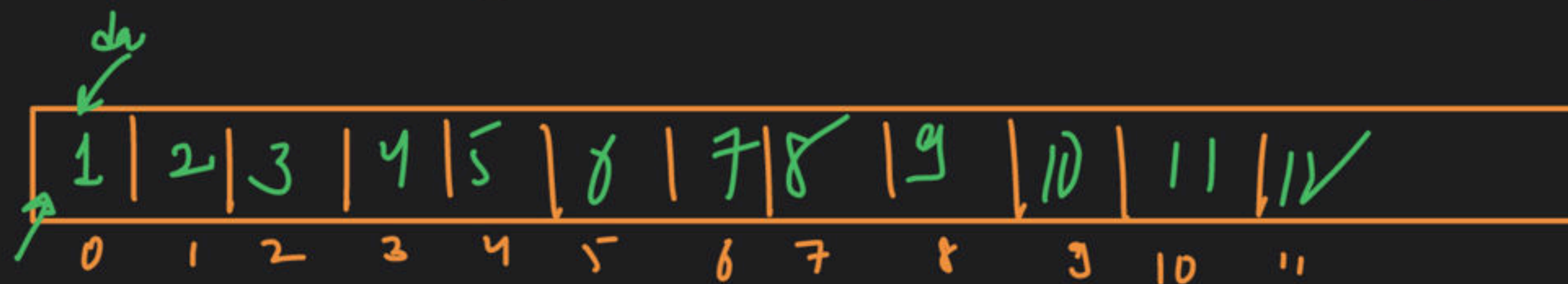
⇒ Algo:

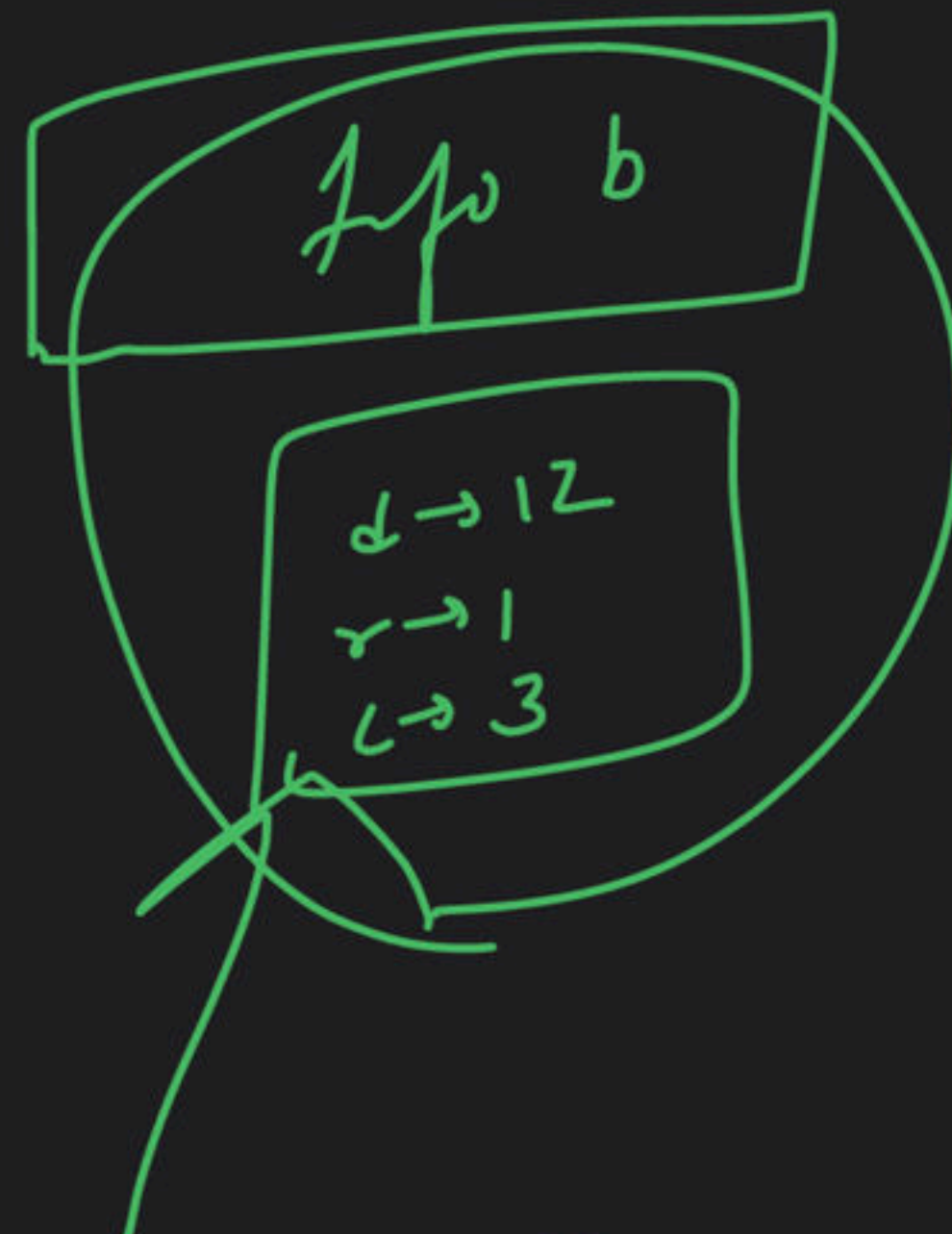
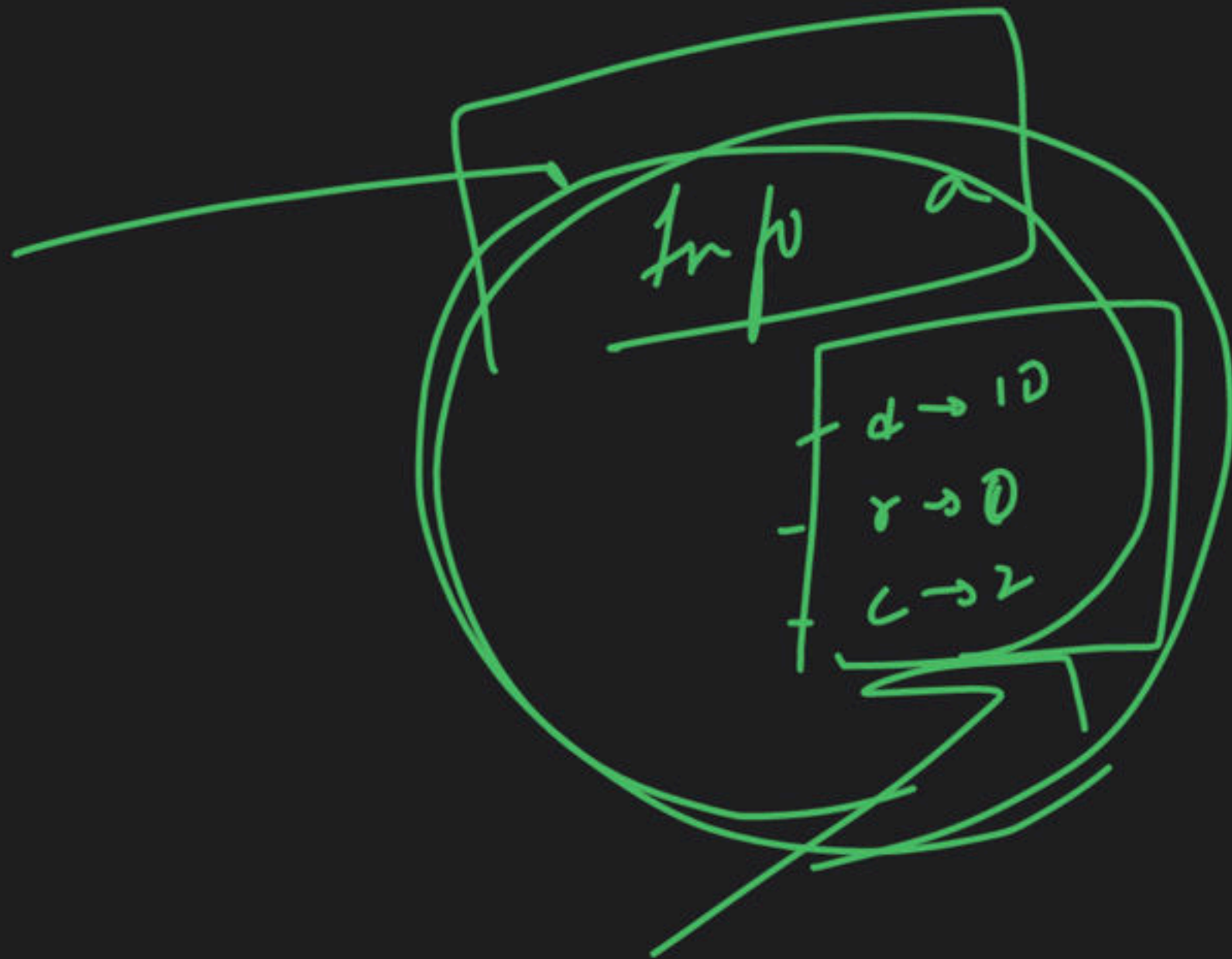
(i) → first element of K-array

↳ mini-heap



K=3





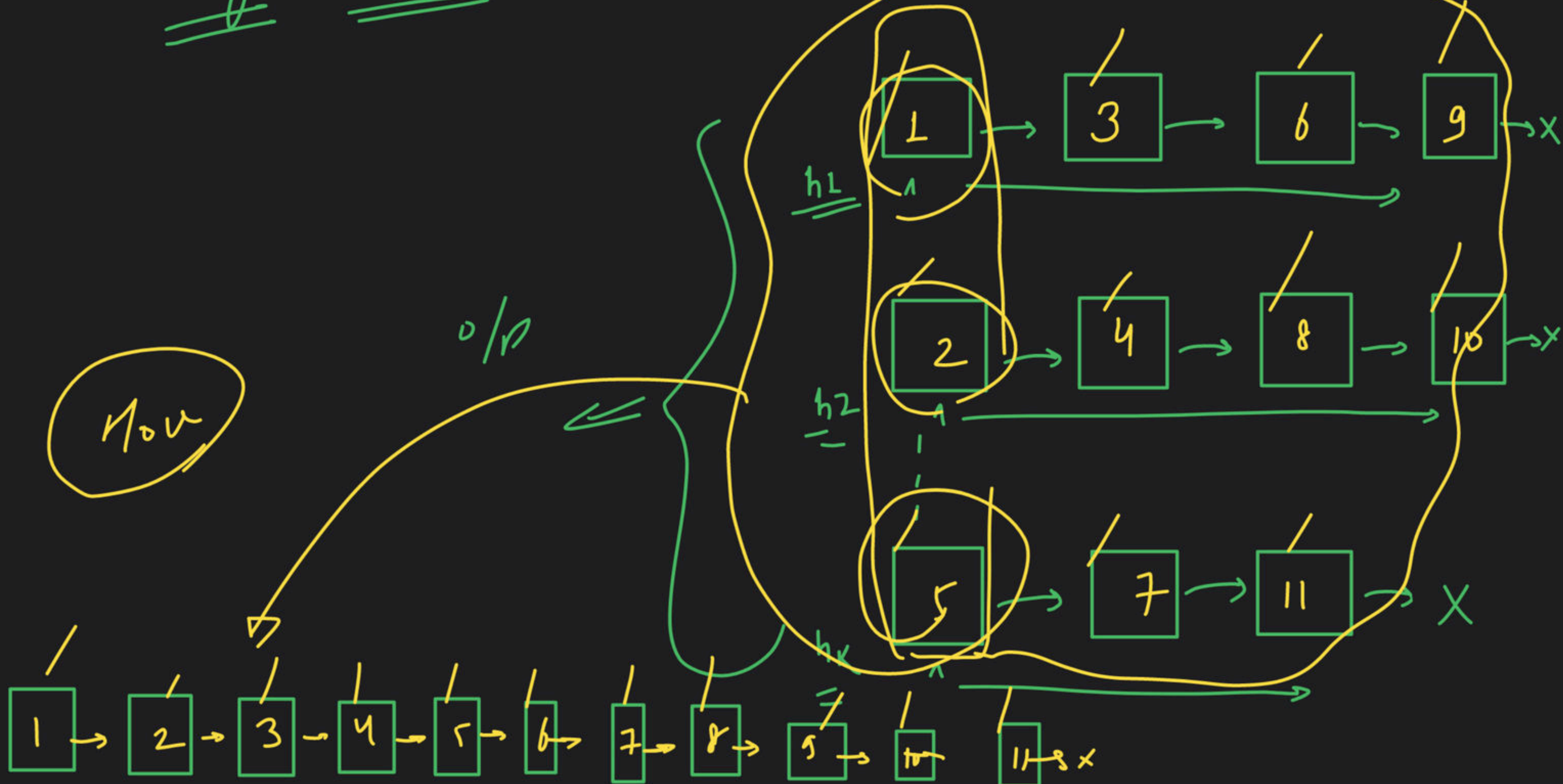
a - d

b · d

→ Merge K-Sorted LinkedList

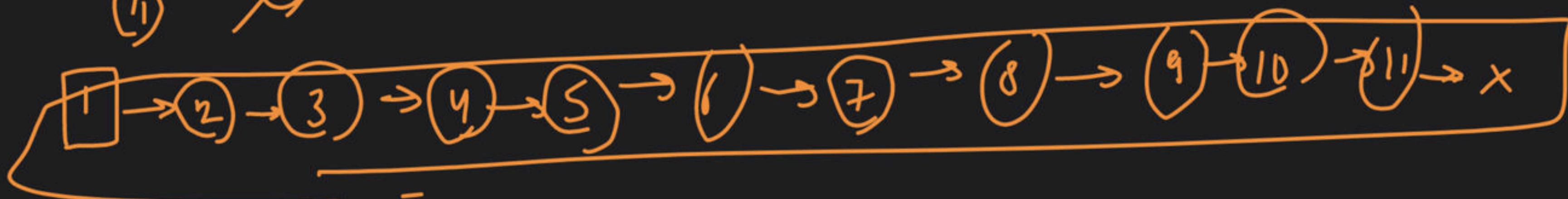
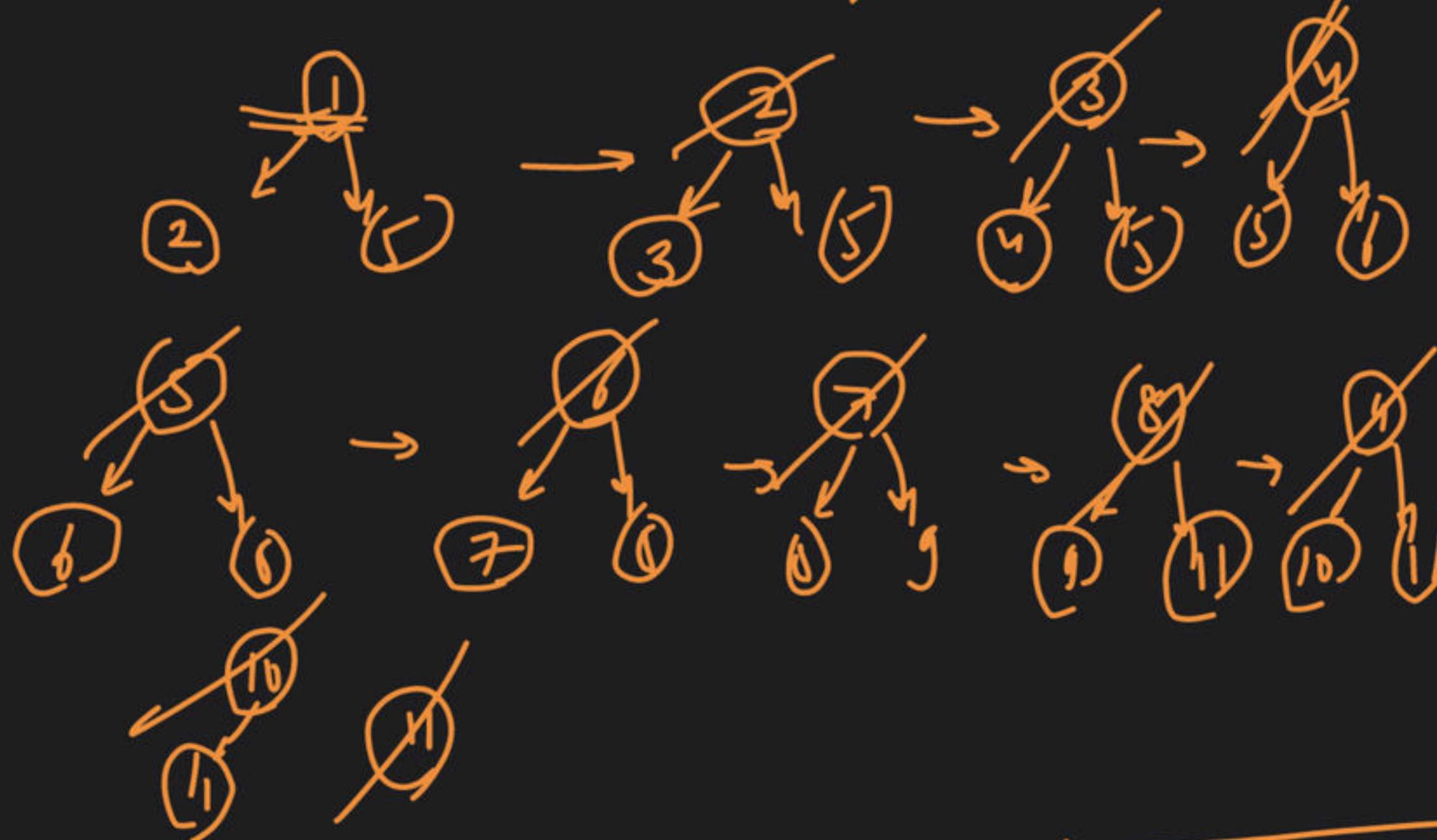
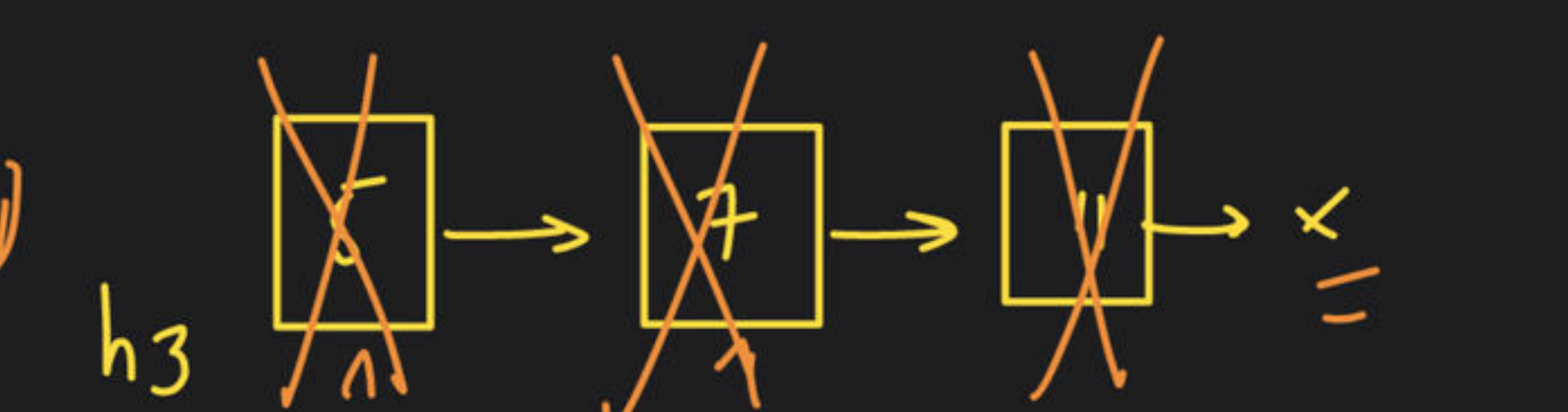
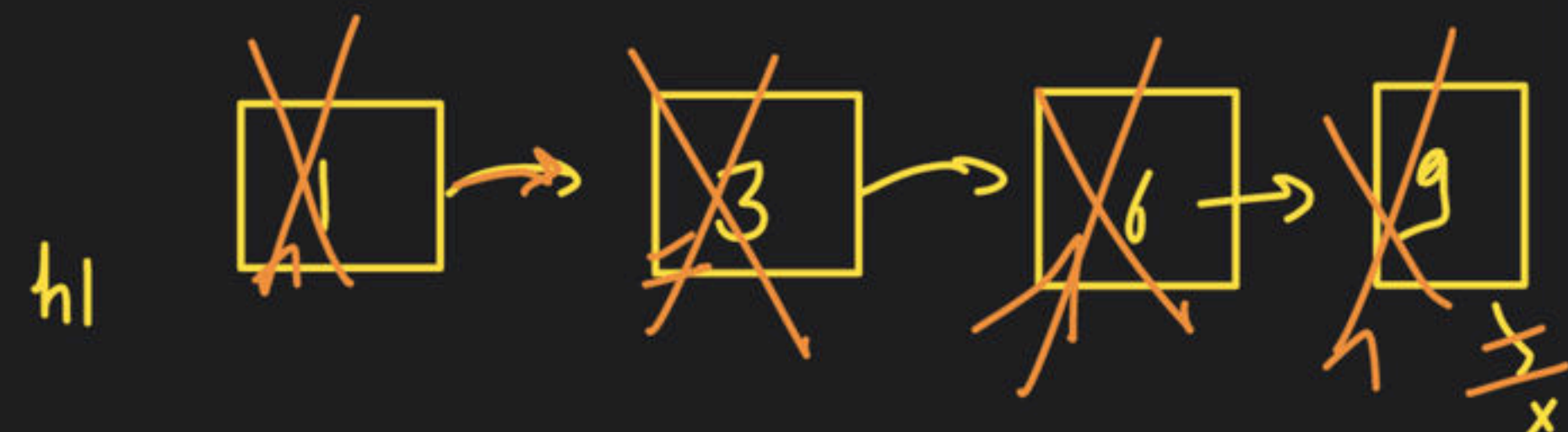
O/P

Now



→ Algo
 First element → K-List
 ↳ min-heap

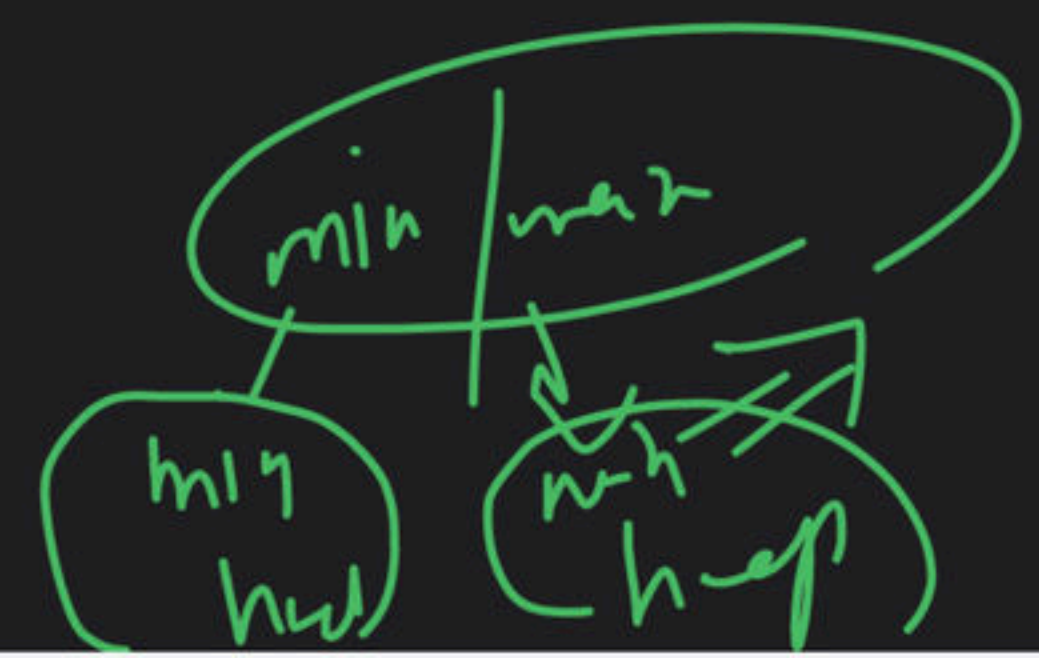
data



⇒ Smallest Range in K-list

min
size

find Ans



- 0-5 → 5
- 4-9 → 5
- 5-10 → 5
- 9-18 → 9
- 10-15 → 6
- 12-18 → 6
- 15-20 → 5
- 18-24 → 5
- 20-24 → 4

ans

min 0 → max

4	10	15	24	26
0	1	2	3	4

0	9	12	20
0	1	2	3

5	18	22	30
0	1	2	3

reach
break



(I) first element \rightarrow k-list \rightarrow min-heap



max = 5

ans mini = 0
ans maxi = 5



max i = 9

max i = 10

comparator

arr1

4	10	15	24	26
0	1	2	3	4

arr2

0	9	12	20
0	1	2	3

arr3

5	18	22	30
0	1	2	3









































