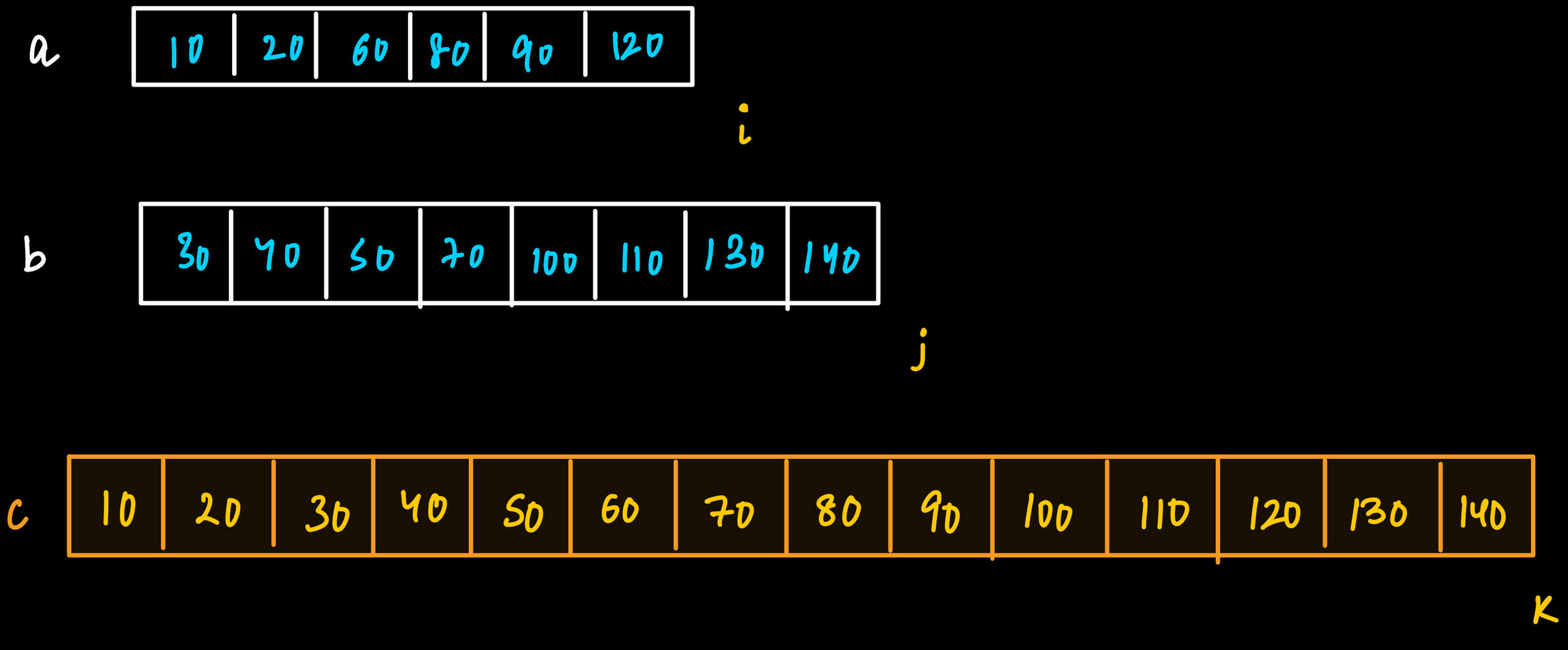
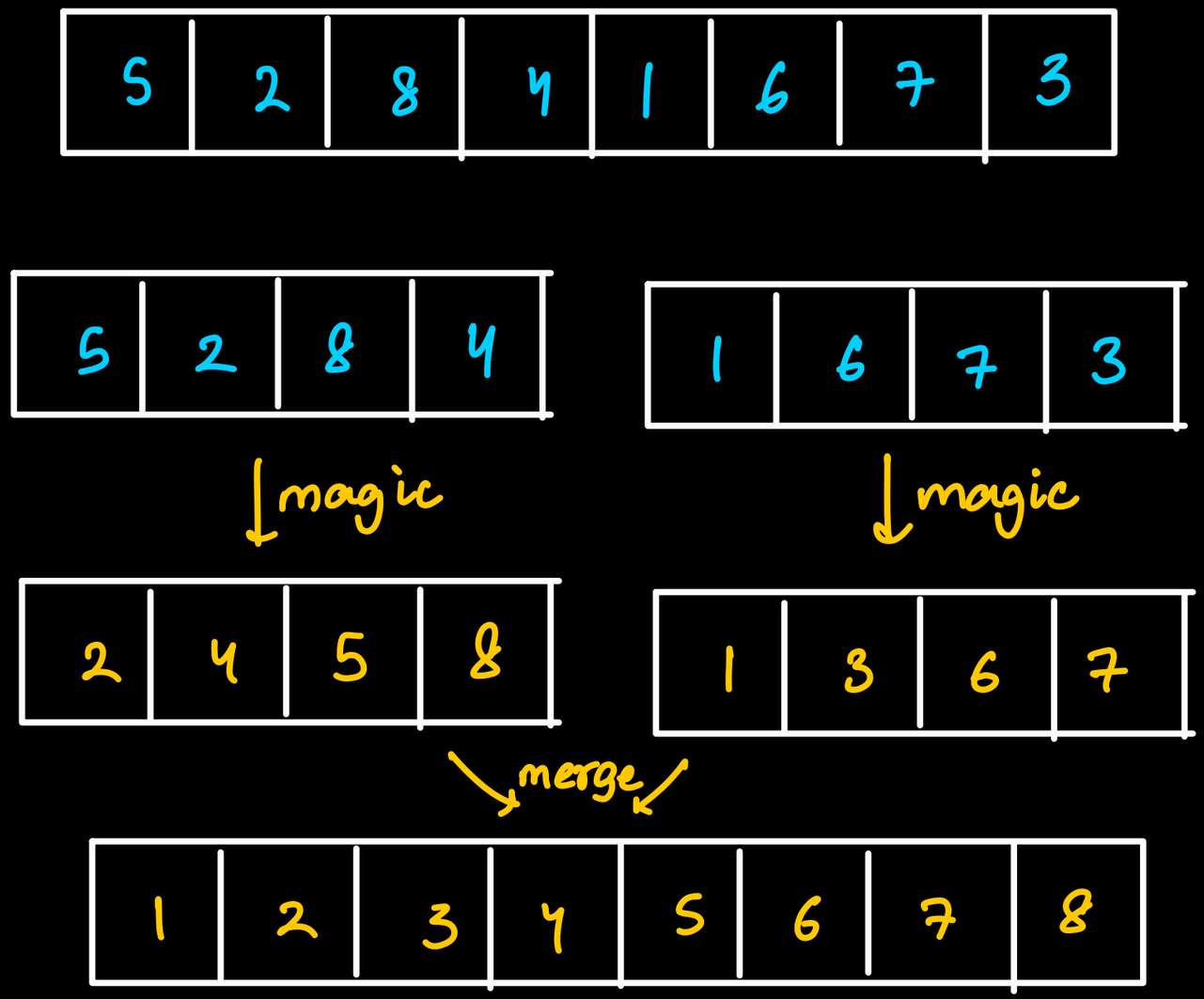
Merge Sort
& Inversion Count

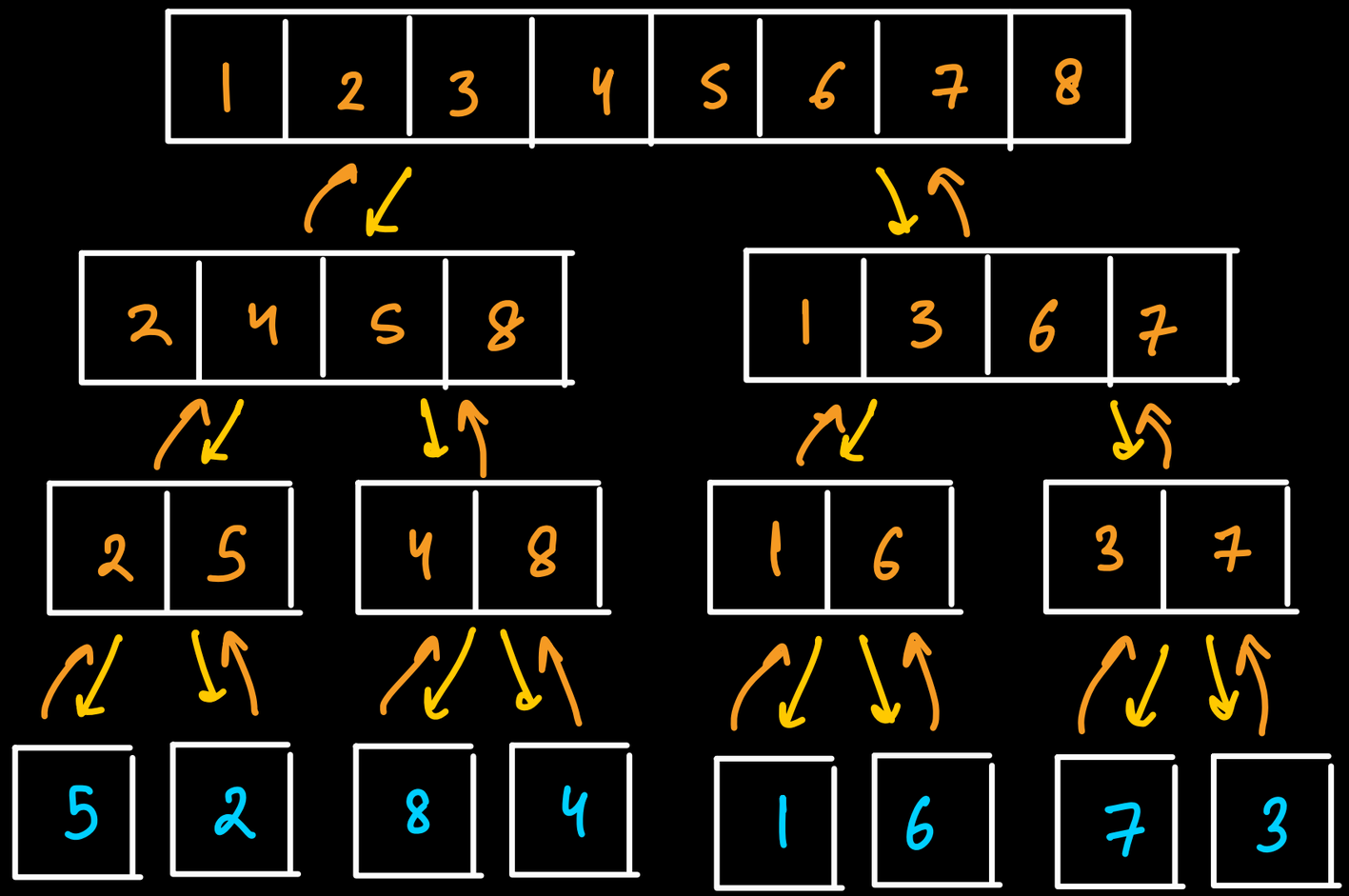
Contents

Ques: Merge 2 Sorted Arrays

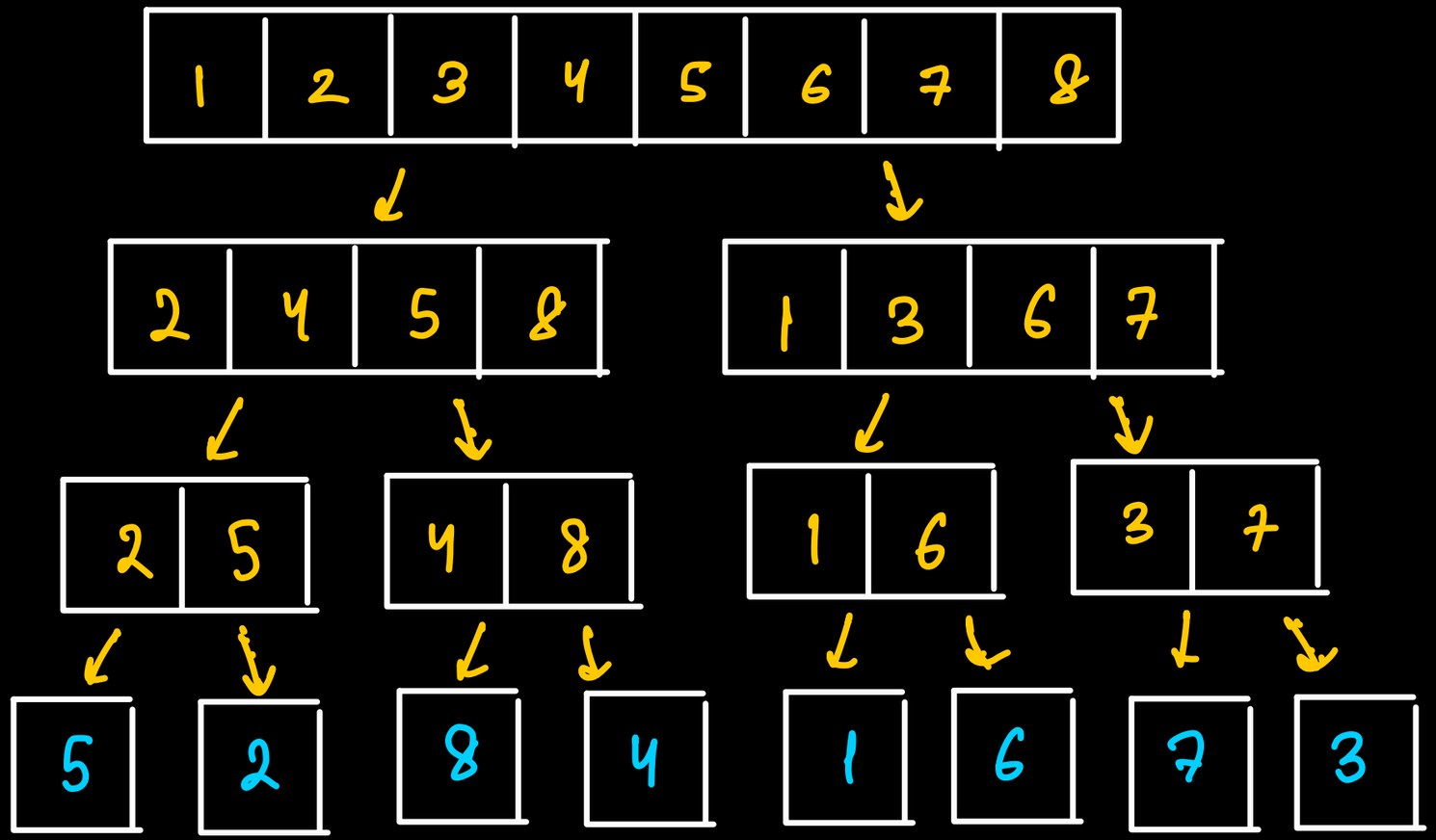


Merge Sort using Magic

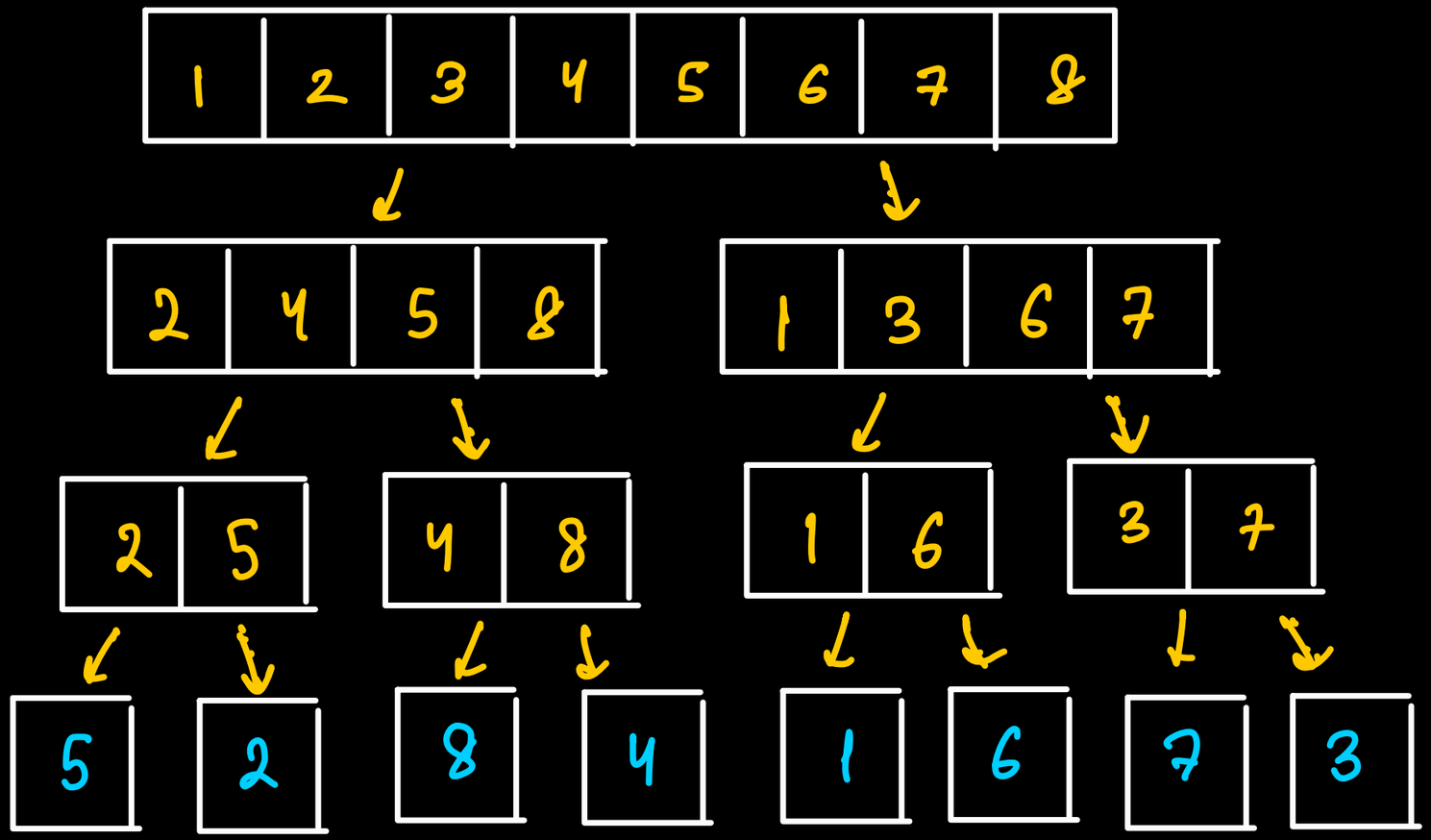



1 2 3 4 5 6 7 8
2 4 5 8
1 3 6 7
2 5
4 8
1 6
3 7
5
2
8
4
1
6
7
3

Merge Sort (Complete Recursion Calls)



Time & Space Analysis



$\log_2 n = 3$

n

$\frac{n}{2} + \frac{n}{2} = n$

$\frac{n}{4} + \frac{n}{4} + \frac{n}{4} + \frac{n}{4} = n$

T.C. = O(n*logn)

A.S. = O(nlogn)/O(n)

Ques: Inversions Count

$a = \{ 2 \quad 3 \quad 5 \}$ (i) $b = \{ 1 \quad 2 \quad 4 \}$ (j)

count = 3 + 2 + 1 = 6

count += (a.length - i)

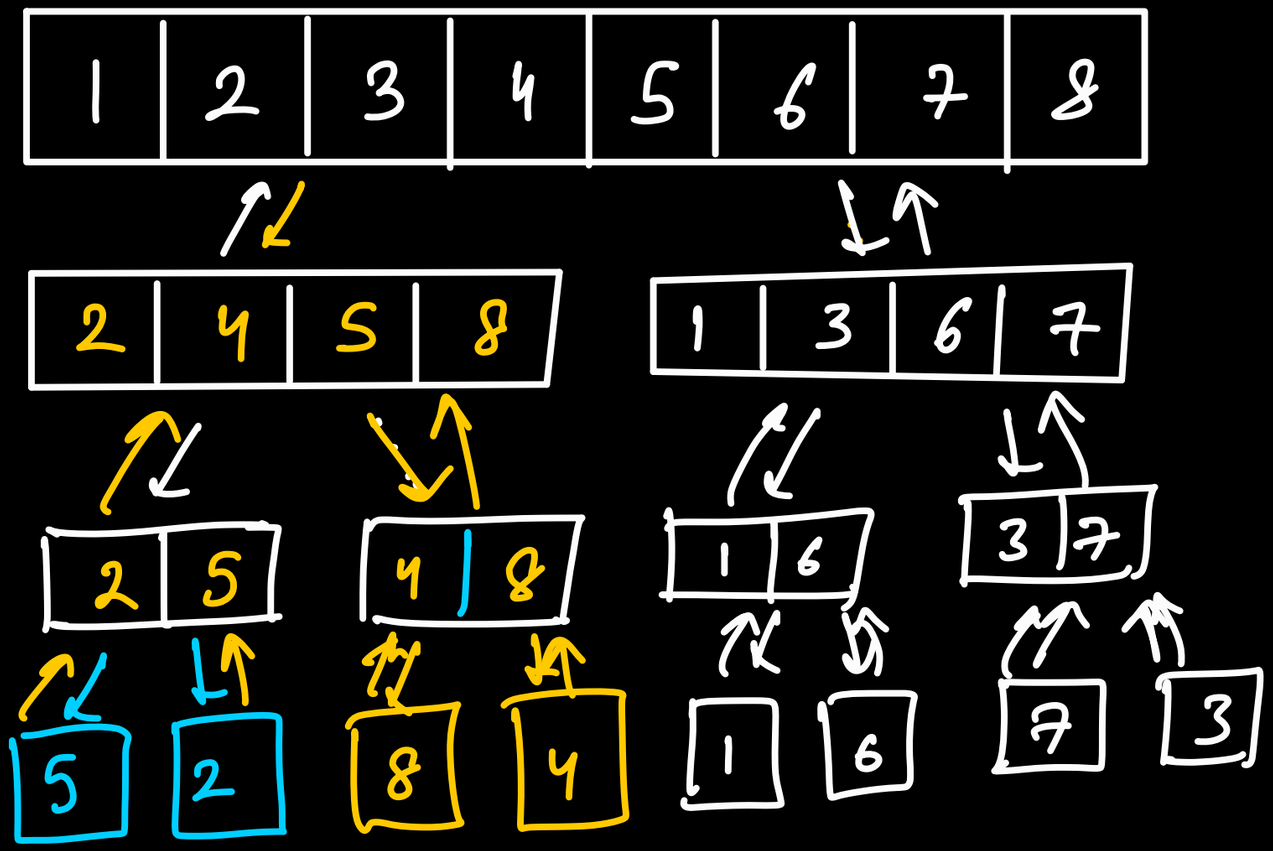
a[i] > b[j]

Ques: Inversions Count

Count

0 1 2 3 4 5 9 12

13 14



inversions = 14

Ques: Reverse Pairs

Leetcode 493

THANKYOU

Cuties