

Ques Merge 2 sorted arrays

1	3	7	11	13
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n_1

2	4	5	6	8	14	15
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n_2

Res

1	2	3	4	5	6	7	8	11	13	14	15
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$n_1 + n_2 = n$

Create new array ($n_1 + n_2$)

Copy both the array ($n_1 + n_2$) $\Rightarrow O(n)$

Sort the resultant array $\Rightarrow n \log n$

TC $\Rightarrow n + n \log(n) \Rightarrow O(n \log n)$

i

$\angle =$

1	3	7	11	13
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j

2	4	5	6	8	14	15
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Res

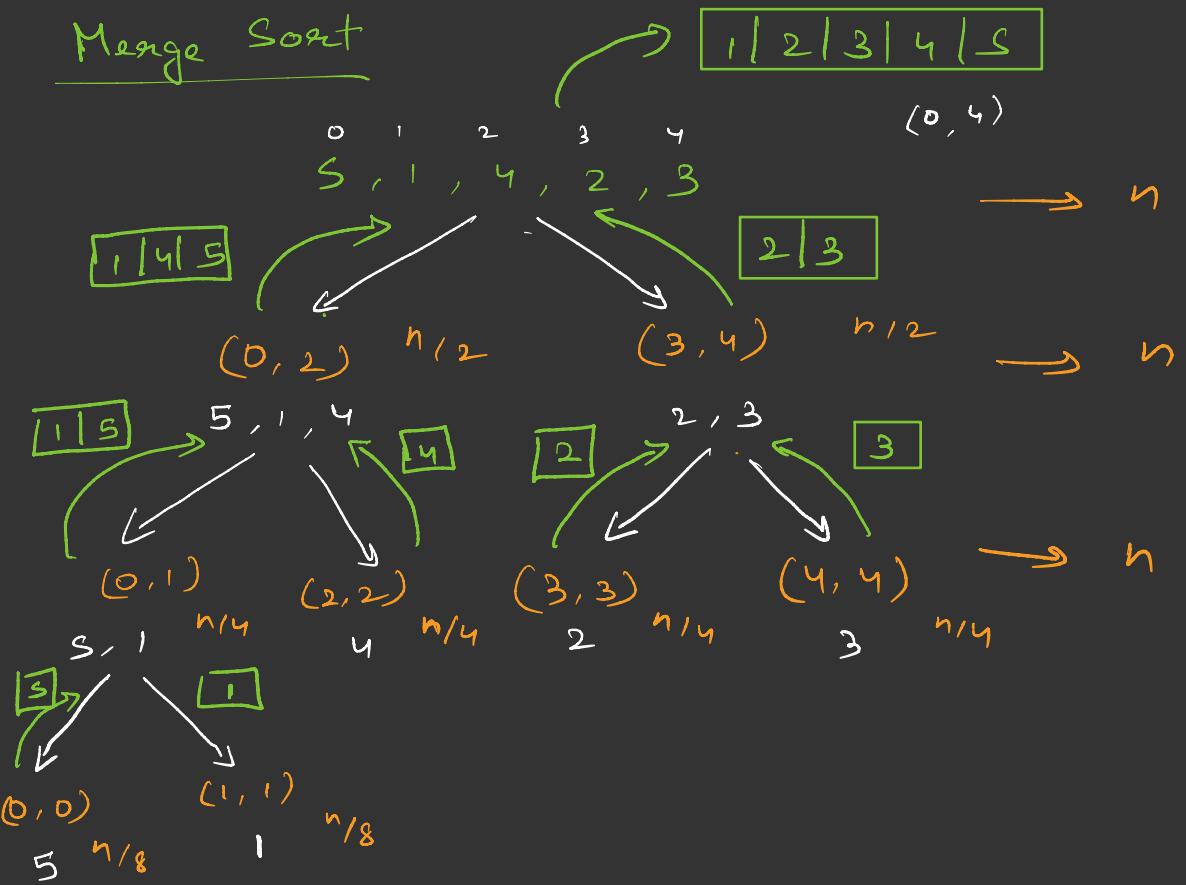
k

1	2	3	4	5	6	7	8	11	13	14	15
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TC $\Rightarrow O(n)$

$n = n_1 + n_2$

Merge Sort



$$\frac{n}{2^k} = 1$$

$$k \Rightarrow \log_2(n)$$

TC \Rightarrow no of operations \times no of levels
per level

$$n \times \log_2 n$$

$$TC \Rightarrow O(n \log n)$$

