

Ques

Merge Sort

Expectation

Faith

MS(arr, 0, 5)

MS(arr, 0, 2)

MS(arr, 3, 5)

Merge Sort

s, m

m+1, e

1, 4, 7

1	7	4	9	3	5
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 3, 5, 9

n

0, 2

3, 5

1 7

1	7	4
---	---	---

 4

3, 9

9	3	5
---	---	---

 5

n/2

0, 1 2, 2

3, 4 5, 5

1	7
---	---

4

9

9	3
---	---

 3

5

n/4

0, 0 1, 1

3, 3 4, 4

1

7

9

3

n/8

n/2^k

—————→ k

TC $\Rightarrow O(n) \times k \Rightarrow$ no of levels

$\Rightarrow O(n \log_2 n)$

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

$$n = 2^k$$

$$\log_2 n$$

$$\Rightarrow k \log_2 2$$

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

Ques

Wave array

2 1 3 5 4

2 1 5 3 4

2 1 4 3 5

a b c d e f

① $a \geq b \leq c \geq d \leq e \geq f \leq \dots$

② Lexicographically smallest

$10 \geq 9 \leq 1 \geq 3 \leq 5 \geq 7 \leq 11$

$10 \geq 1 \leq 9 \geq 3 \leq 7 \geq 5 \leq 11$

8

2 1 3 5 4

① sort

0	1	2	3	4	5	6	7
1	2	3	4	5	6	7	

$2 \geq 1 \leq 4 \geq 3 \leq 6 \geq 5 \leq 7$