

Merge Sort

13 July 2023 20:25

arr1 =

1	4	7	9
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0 1 2 3

arr2 =

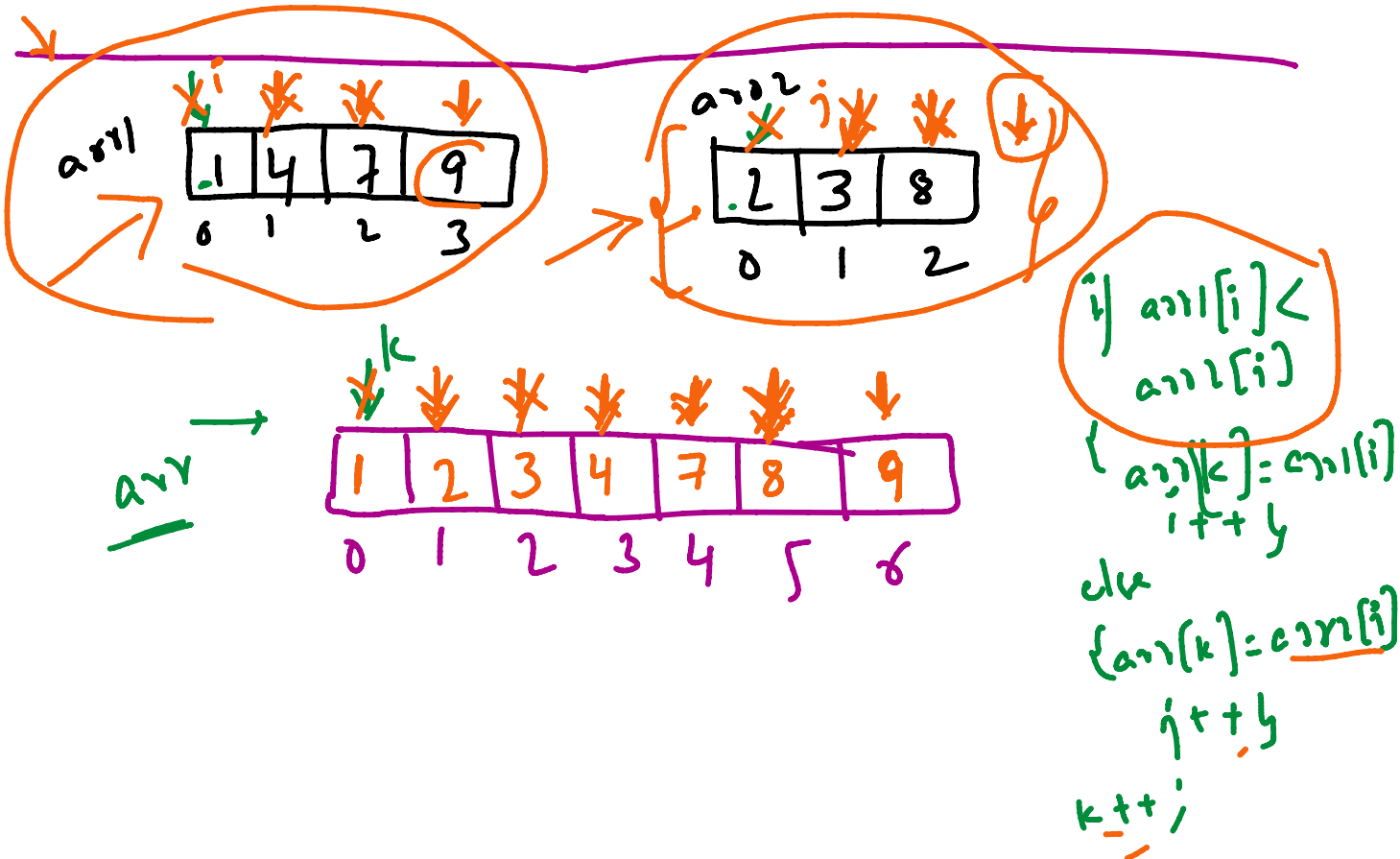
2	3	8
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0 1 2

→ arr =

1	2	3	4	7	8	9
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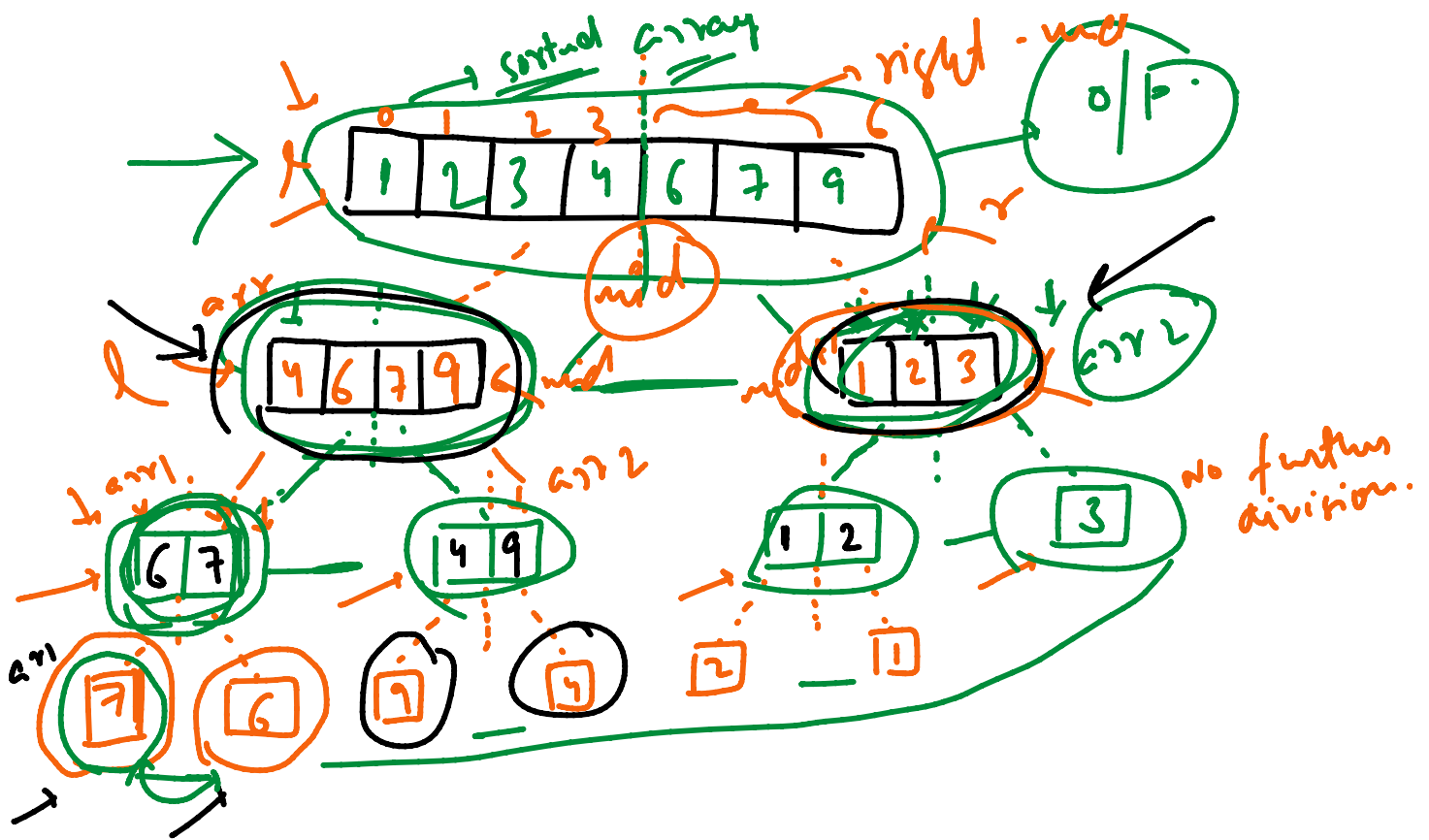
0 1 2 3 4 5 6



Merge Sort → It is a sorting algorithm.

- ↳ It works on divide & conquer.
- ↳ It takes benefit of the fact that single element is always sorted.

↓
sorted array right - mid

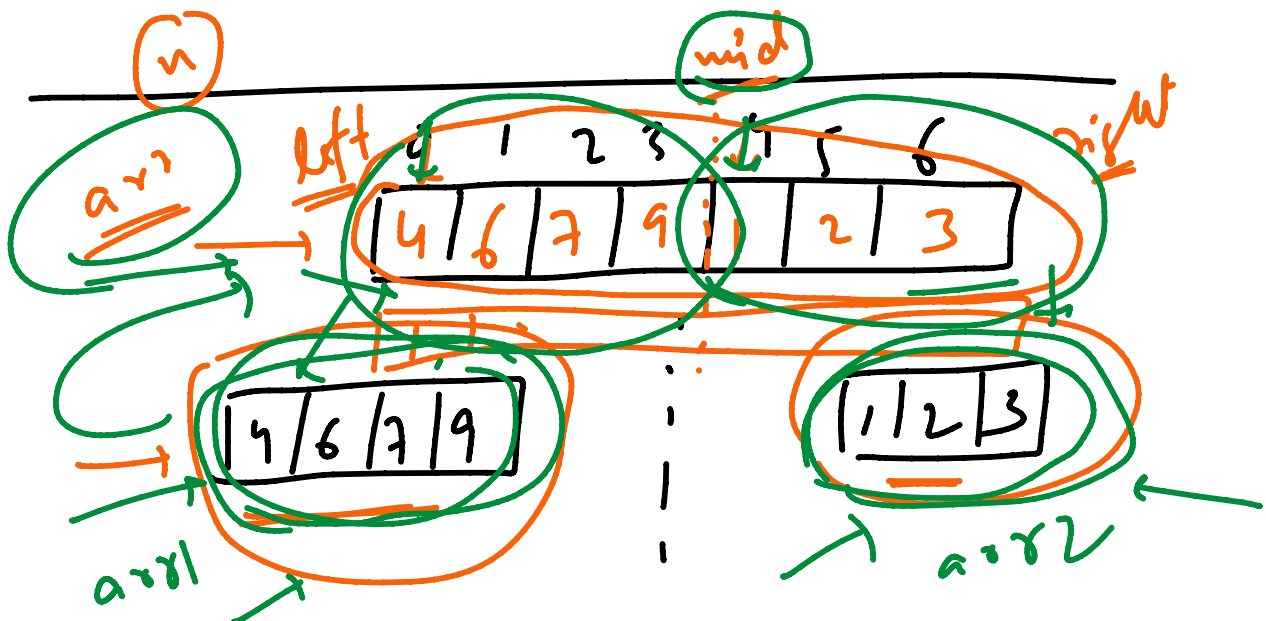


0 —————> 7

$$\frac{0 + 6}{2} = 3$$

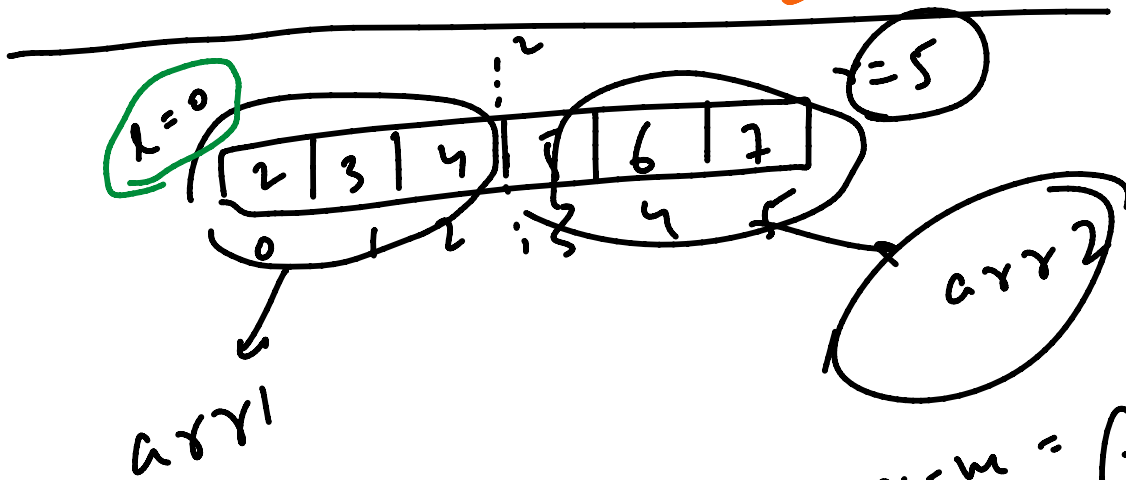
$$3 - 0 + 1 = 4$$

$$6 - 3 = 3$$



[...] [mid+1 right]

$[left - mid]$, $[mid+1, right]$



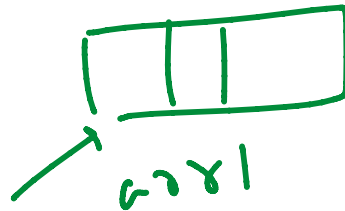
$$m-l+1 = 2-0+1 = 3$$

int arr1[3]

$$r-m = 5-2 = 3$$

int arr2[3]

for ($i = left$; $i \leq mid$; $i++$)
 { arr1[i] = arr[i] ;
 $i++$; }



arr :

0	1	2	3
3	4	2	1

→ ms(arr, n, 0, 3)

$$\frac{0+3}{2} = 1$$

ms(arr, n, 2, 3)

→ ms(arr, n, 0, 1)

merge(arr, n, 0, 1, 3)

