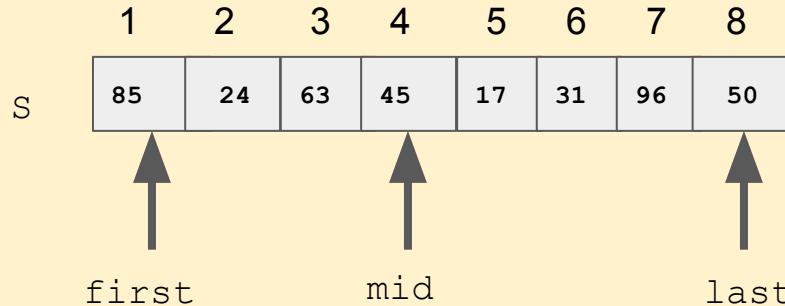
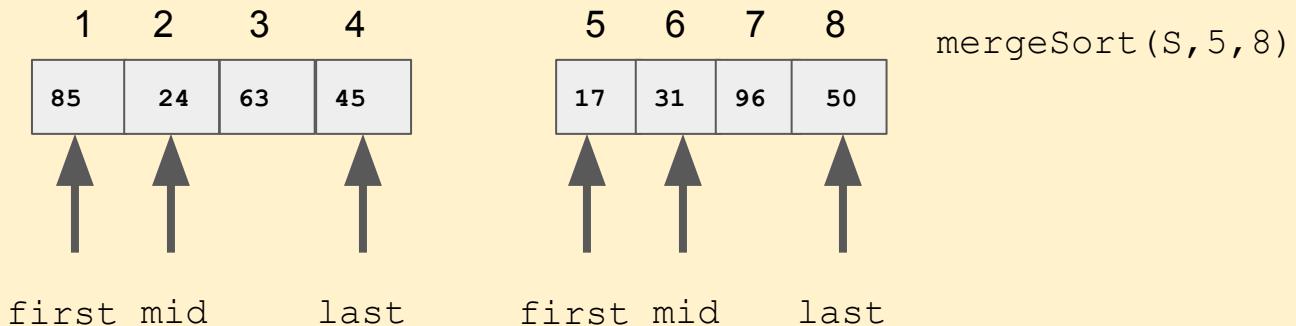


Merge sort

mergeSort(S, 1, 8)

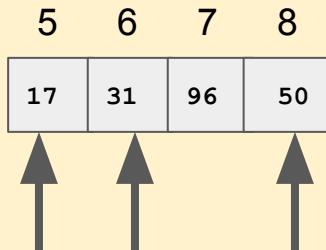
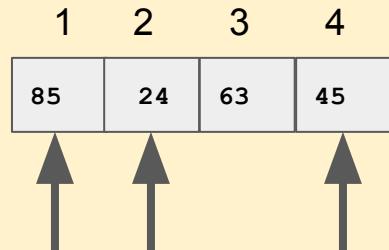


mergeSort(S, 1, 4)



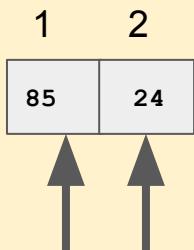
Merge sort

mergeSort(S, 1, 4)

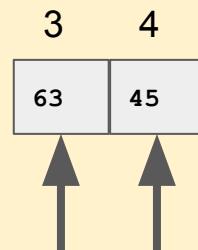


mergeSort(S, 5, 8)

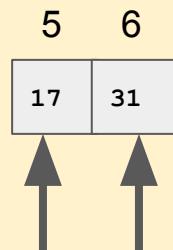
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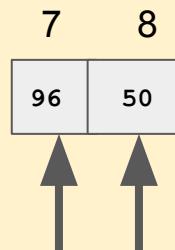
mergeSort(S, 3, 4)



mergeSort(S, 5, 6)



mergeSort(S, 7, 8)



first
last
mid

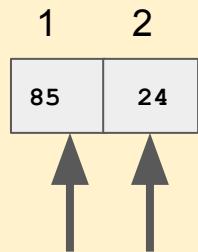
first
last
mid

first
last
mid

first
last
mid

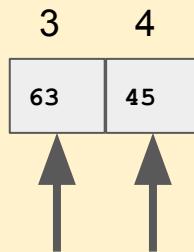
Merge sort

mergeSort(S, 1, 2)



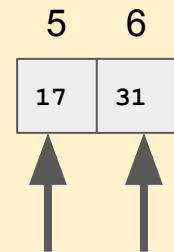
first last
mid

mergeSort(S, 3, 4)



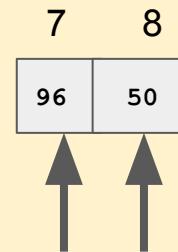
first last
mid

mergeSort(S, 5, 6)



first last
mid

mergeSort(S, 7, 8)



first last
mid

mergeSort(S, 1, 1)



mergeSort(S, 2, 2)



mergeSort(S, 3, 3)



mergeSort(S, 4, 4)



mergeSort(S, 5, 5)



mergeSort(S, 6, 6)



mergeSort(S, 7, 7)



mergeSort(S, 8, 8)



Merge sort

mergeSort($S, 1, 2$)

mergeSort($S, 3, 4$)

mergeSort($S, 5, 6$)

mergeSort($S, 7, 8$)

85	∞
----	----------

24	∞
----	----------

63	∞
----	----------

45	∞
----	----------

17	∞
----	----------

31	∞
----	----------

96	∞
----	----------

50	∞
----	----------



24 < 85

1	2
---	---

85	24
----	----

3	4
---	---

63	45
----	----

5	6
---	---

17	31
----	----

7	8
---	---

96	50
----	----



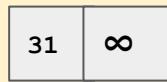
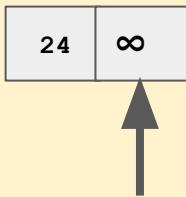
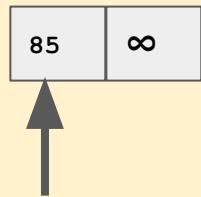
Merge sort

mergeSort($S, 1, 2$)

mergeSort($S, 3, 4$)

mergeSort($S, 5, 6$)

mergeSort($S, 7, 8$)



1 2



3 4



5 6

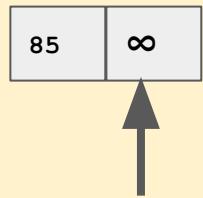


7 8

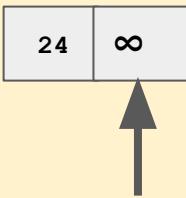


Merge sort

mergeSort($S, 1, 2$)



mergeSort($S, 3, 4$)



mergeSort($S, 5, 6$)

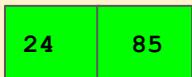


mergeSort($S, 7, 8$)

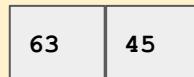


$45 < 63$

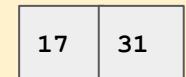
1 2



3 4



5 6



7 8



Merge sort

mergeSort($S, 1, 2$)

85	∞
----	----------

24	∞
----	----------

63	∞
----	----------

45	∞
----	----------

17	∞
----	----------

31	∞
----	----------

96	∞
----	----------

50	∞
----	----------

mergeSort($S, 3, 4$)

63	∞
----	----------

45	∞
----	----------

mergeSort($S, 5, 6$)

17	∞
----	----------

31	∞
----	----------

mergeSort($S, 7, 8$)

1 2

24	85
----	----

3 4

45	45
----	----

5 6

17	31
----	----

7 8

96	50
----	----



Merge sort

`mergeSort(S, 1, 2)`



`mergeSort(S, 3, 4)`



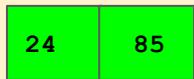
`mergeSort(S, 5, 6)`



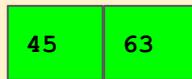
mergeSort(S, 7, 8)



1 2

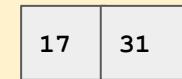


3 4



$$17 < 31$$

5 6



7 8



Merge sort

mergeSort($S, 1, 2$)

85	∞
----	----------

24	∞
----	----------

63	∞
----	----------

45	∞
----	----------

17	∞
----	----------

31	∞
----	----------

96	∞
----	----------

50	∞
----	----------

mergeSort($S, 3, 4$)

3	4
45	63

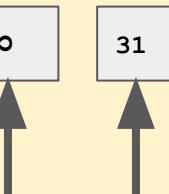
1	2
24	85

mergeSort($S, 5, 6$)

5	6
17	31

7	8
96	50

mergeSort($S, 7, 8$)



Merge sort

mergeSort($S, 1, 2$)

85	∞
----	----------

24	∞
----	----------

63	∞
----	----------

45	∞
----	----------

17	∞
----	----------

31	∞
----	----------

96	∞
----	----------

50	∞
----	----------

mergeSort($S, 3, 4$)

45	∞
----	----------

mergeSort($S, 5, 6$)

17	∞
----	----------

31	∞
----	----------

mergeSort($S, 7, 8$)

96	∞
----	----------

50	∞
----	----------

3 4

45	63
----	----

5 6

17	31
----	----

7 8

96	50
----	----

1 2

24	85
----	----

$50 < 96$



Merge sort

mergeSort($S, 1, 2$)

85	∞
----	----------

24	∞
----	----------

63	∞
----	----------

45	∞
----	----------

17	∞
----	----------

31	∞
----	----------

96	∞
----	----------

50	∞
----	----------

mergeSort($S, 3, 4$)

3 4

45	63
----	----

1 2

24	85
----	----

mergeSort($S, 5, 6$)

5 6

17	31
----	----

7 8

50	50
----	----

17

31

96

50

17

31

7

8

50

50

Merge sort

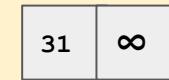
mergeSort($S, 1, 2$)



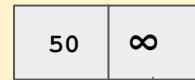
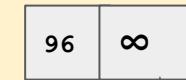
mergeSort($S, 3, 4$)



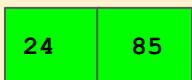
mergeSort($S, 5, 6$)



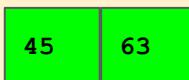
mergeSort($S, 7, 8$)



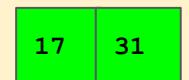
1 2



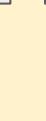
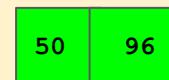
3 4



5 6



7 8



Merge sort

mergeSort(S, 1, 4)

mergeSort(S, 5, 8)

24	85	∞
----	----	---



24 < 45

1 2 3 4

85	24	63	45
----	----	----	----



45	63	∞
----	----	---



17	31	∞
----	----	---



5 6 7 8

17	31	96	50
----	----	----	----



Merge sort

mergeSort(S, 1, 4)

24	85	∞
----	----	---



45 < 85

1 2 3 4

24	24	63	45
----	----	----	----



45	63	∞
----	----	---



mergeSort(S, 5, 8)

17	31	∞
----	----	---



5 6 7 8

17	31	96	50
----	----	----	----



Merge sort

mergeSort(S, 1, 4)

24	85	∞
----	----	---



63 < 85

1 2 3 4

24	45	63	45
----	----	----	----



45	63	∞
----	----	---



mergeSort(S, 5, 8)

17	31	∞
----	----	---



5 6 7 8

17	31	96	50
----	----	----	----



Merge sort

mergeSort($S, 1, 4$)

mergeSort($S, 5, 8$)

24	85	∞
----	----	----------



45	63	∞
----	----	----------



17	31	∞
----	----	----------



50	96	∞
----	----	----------



1 2 3 4

24	45	63	45
----	----	----	----



5 6 7 8

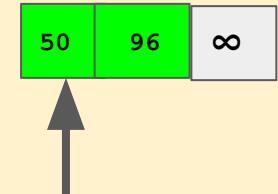
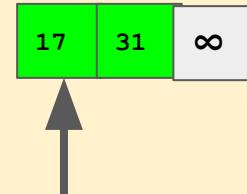
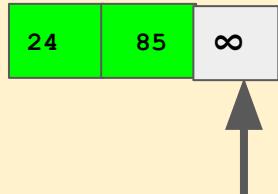
17	31	96	50
----	----	----	----



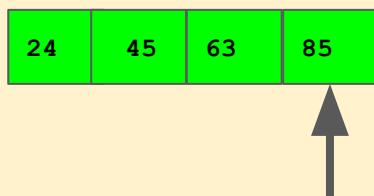
Merge sort

mergeSort($S, 1, 4$)

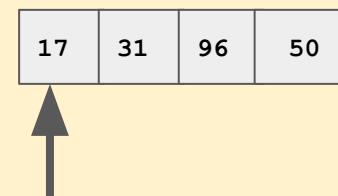
mergeSort($S, 5, 8$)



1 2 3 4

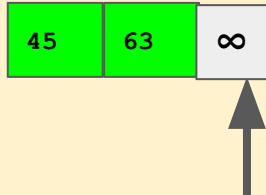
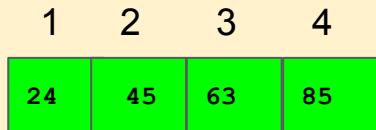
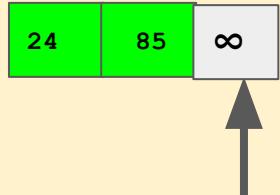


5 6 7 8



Merge sort

mergeSort($S, 1, 4$)



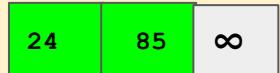
mergeSort($S, 5, 8$)

$17 < 50$

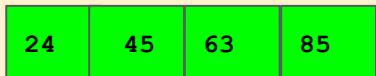
5 6 7 8

Merge sort

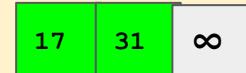
mergeSort(S, 1, 4)



1 2 3 4

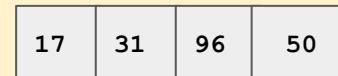


mergeSort(S, 5, 8)



$31 < 50$

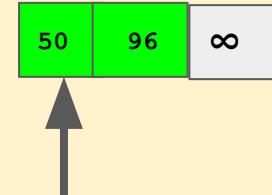
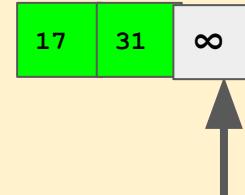
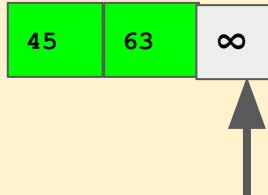
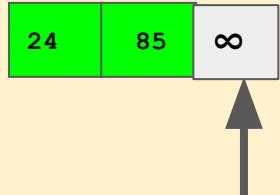
5 6 7 8



Merge sort

mergeSort(S, 1, 4)

mergeSort(S, 5, 8)



1 2 3 4

24	45	63	85
----	----	----	----

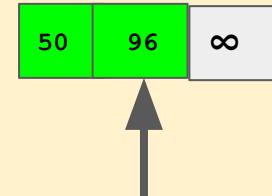
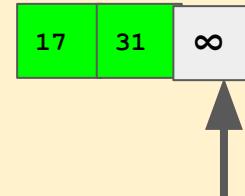
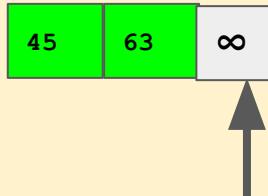
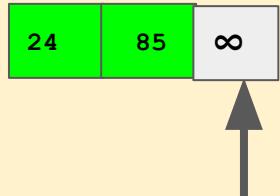
5 6 7 8

17	31	50	50
----	----	----	----

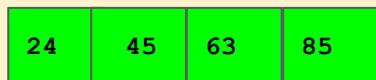
Merge sort

mergeSort(S, 1, 4)

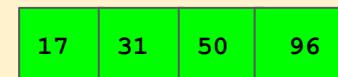
mergeSort(S, 5, 8)



1 2 3 4

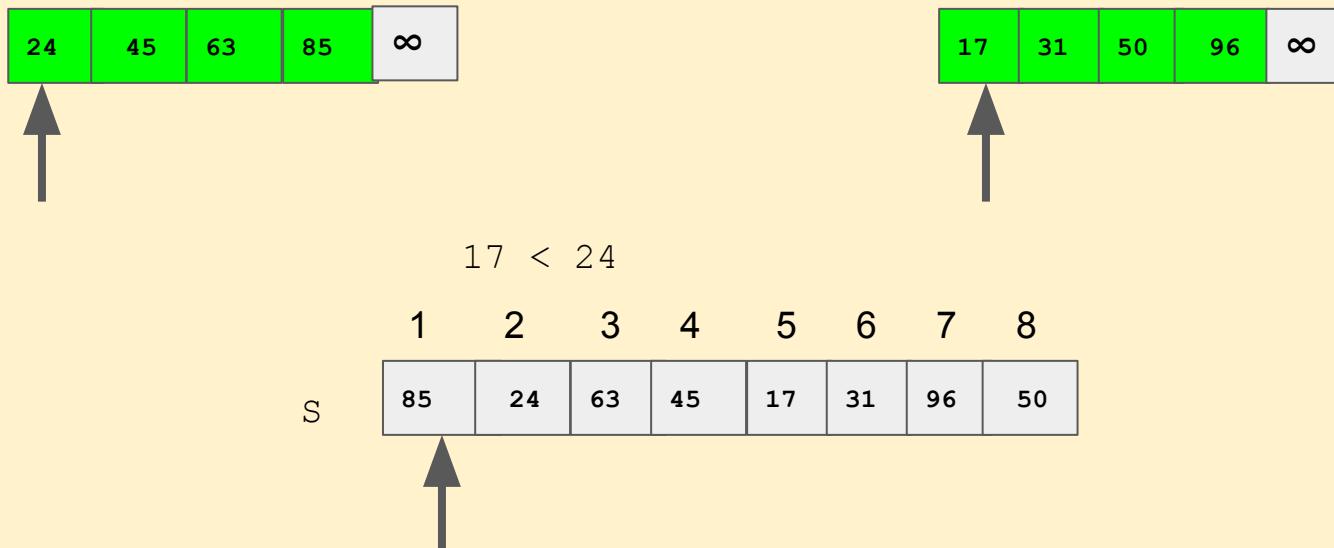


5 6 7 8



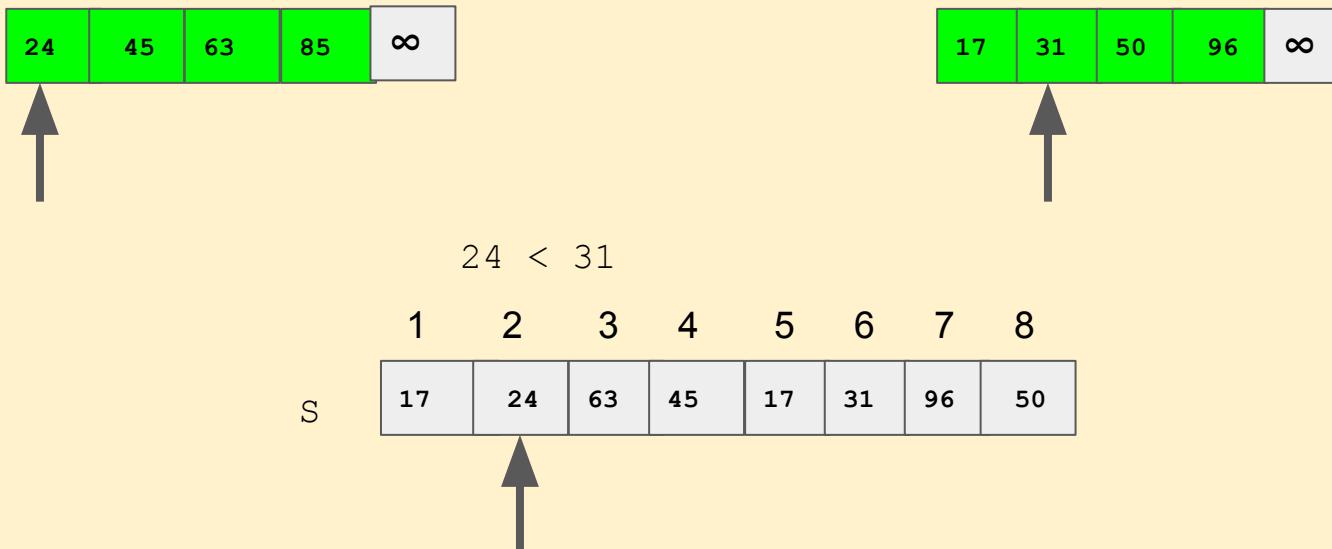
Merge sort

mergeSort($S, 1, 8$)



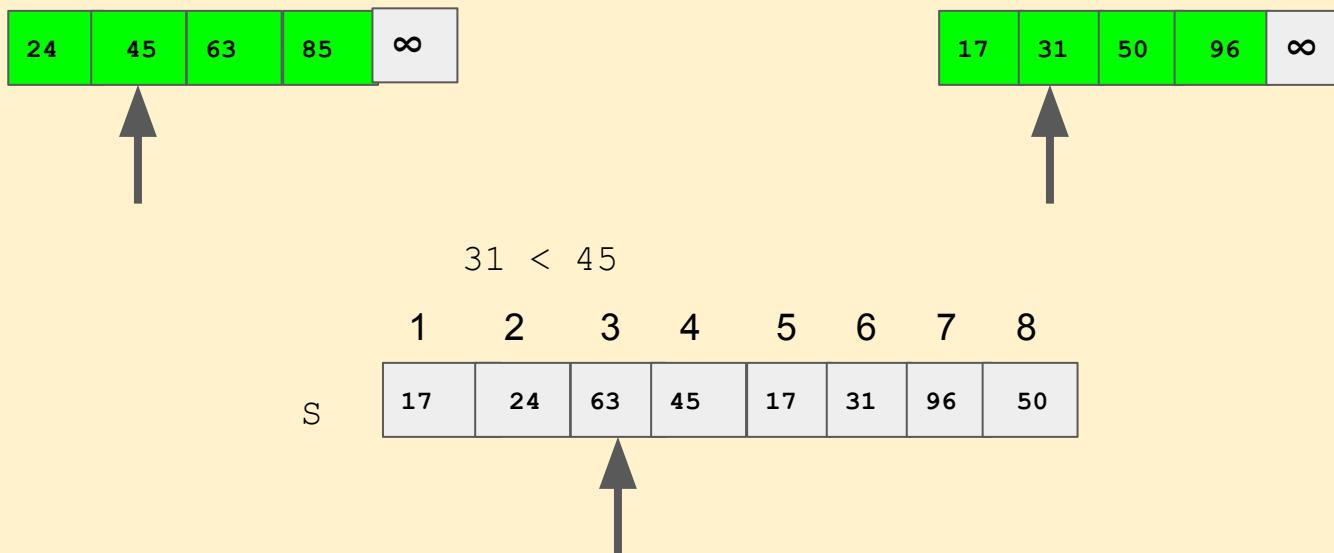
Merge sort

mergeSort($S, 1, 8$)



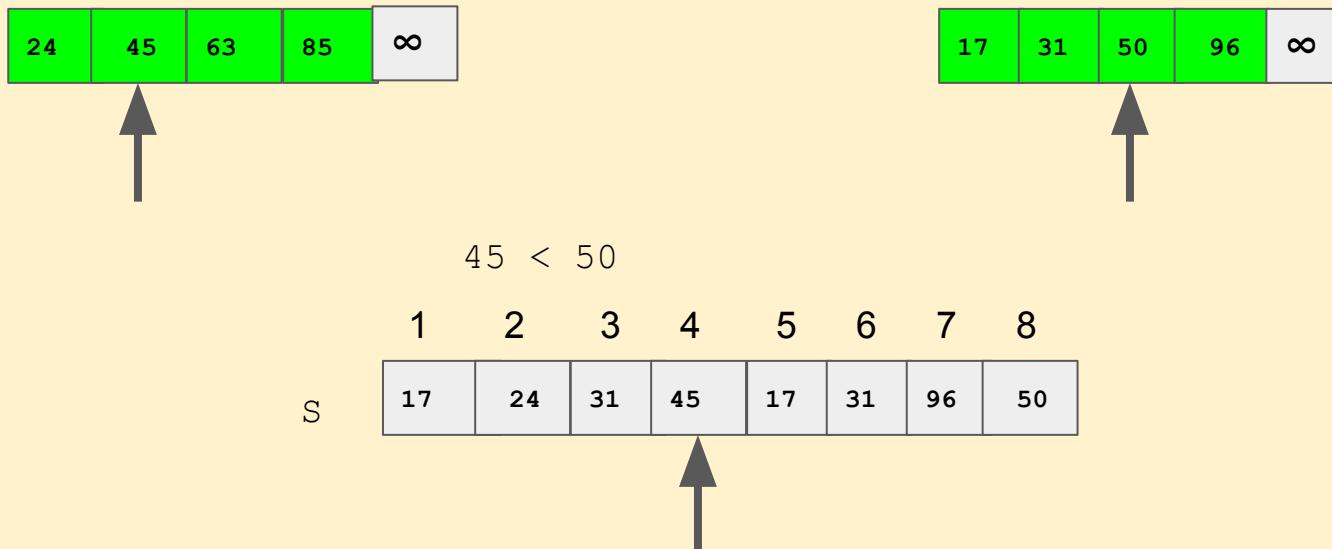
Merge sort

mergeSort($S, 1, 8$)



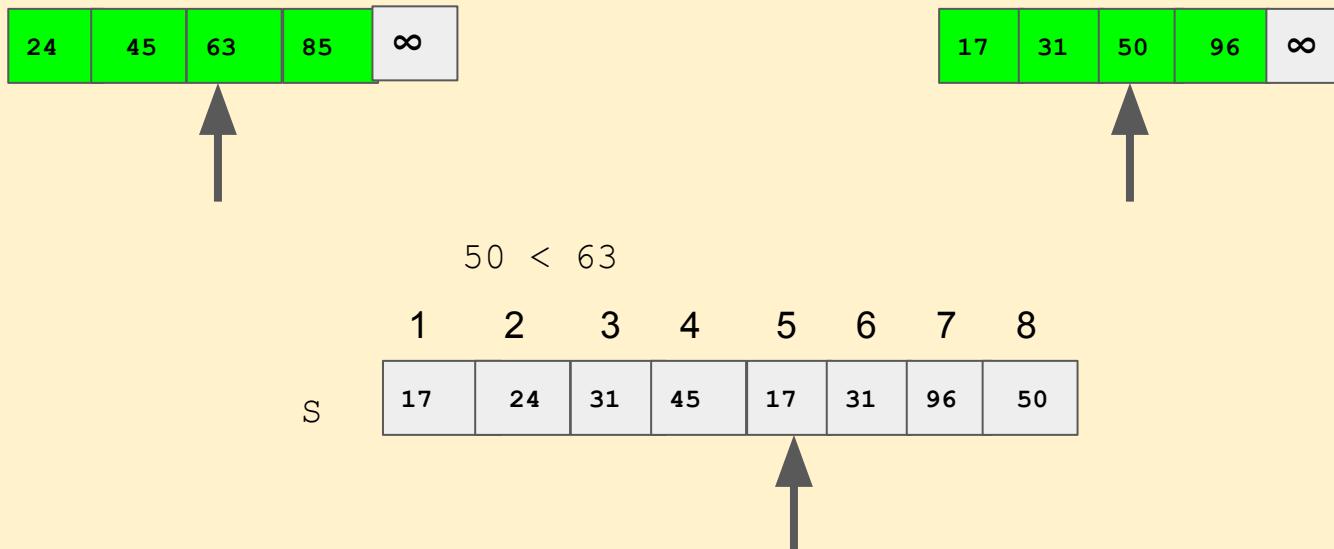
Merge sort

mergeSort($S, 1, 8$)



Merge sort

mergeSort($S, 1, 8$)



Merge sort

mergeSort($S, 1, 8$)

24	45	63	85	∞
----	----	----	----	----------



17	31	50	96	∞
----	----	----	----	----------



63 < 96

1 2 3 4 5 6 7 8

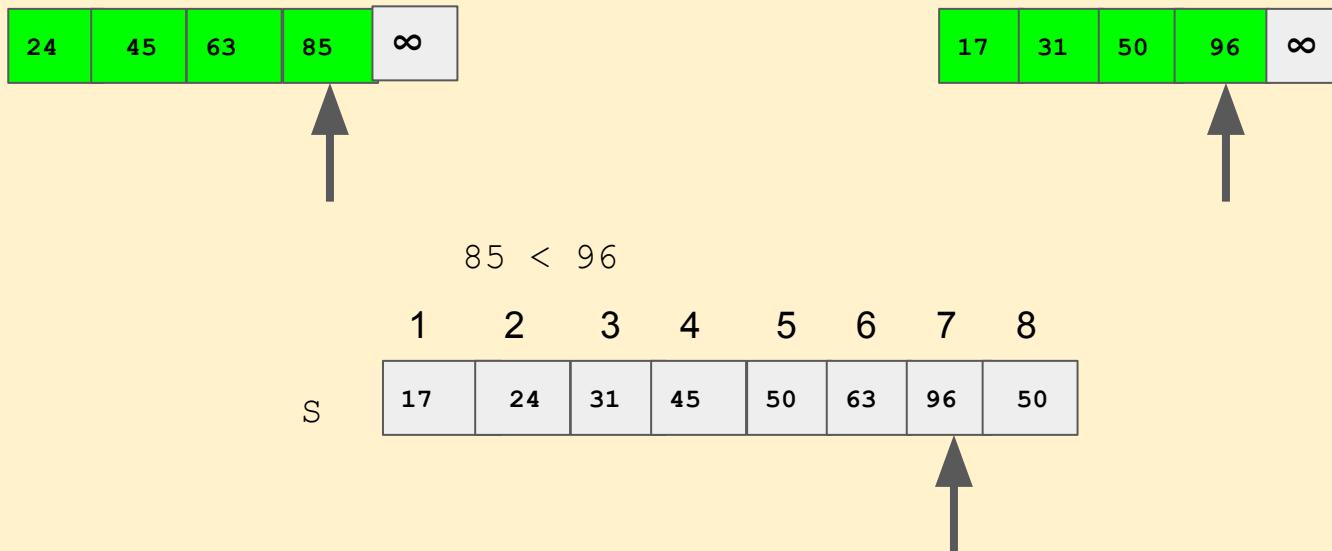
S

17	24	31	45	50	31	96	50
----	----	----	----	----	----	----	----



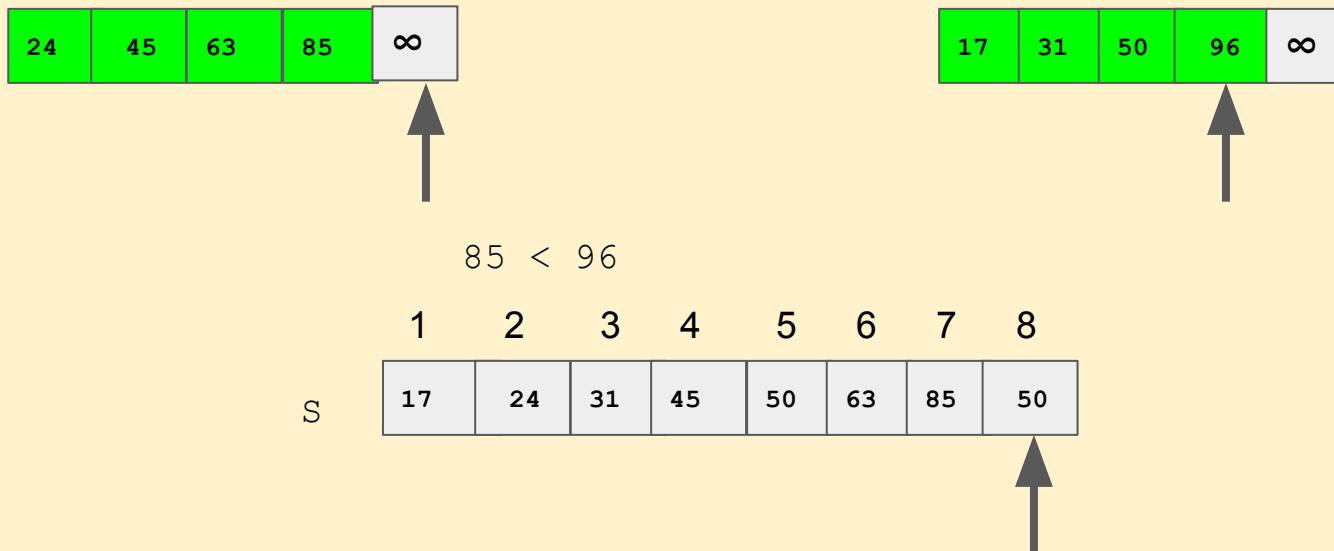
Merge sort

mergeSort($S, 1, 8$)



Merge sort

mergeSort($S, 1, 8$)



Merge sort

mergeSort($S, 1, 8$)

