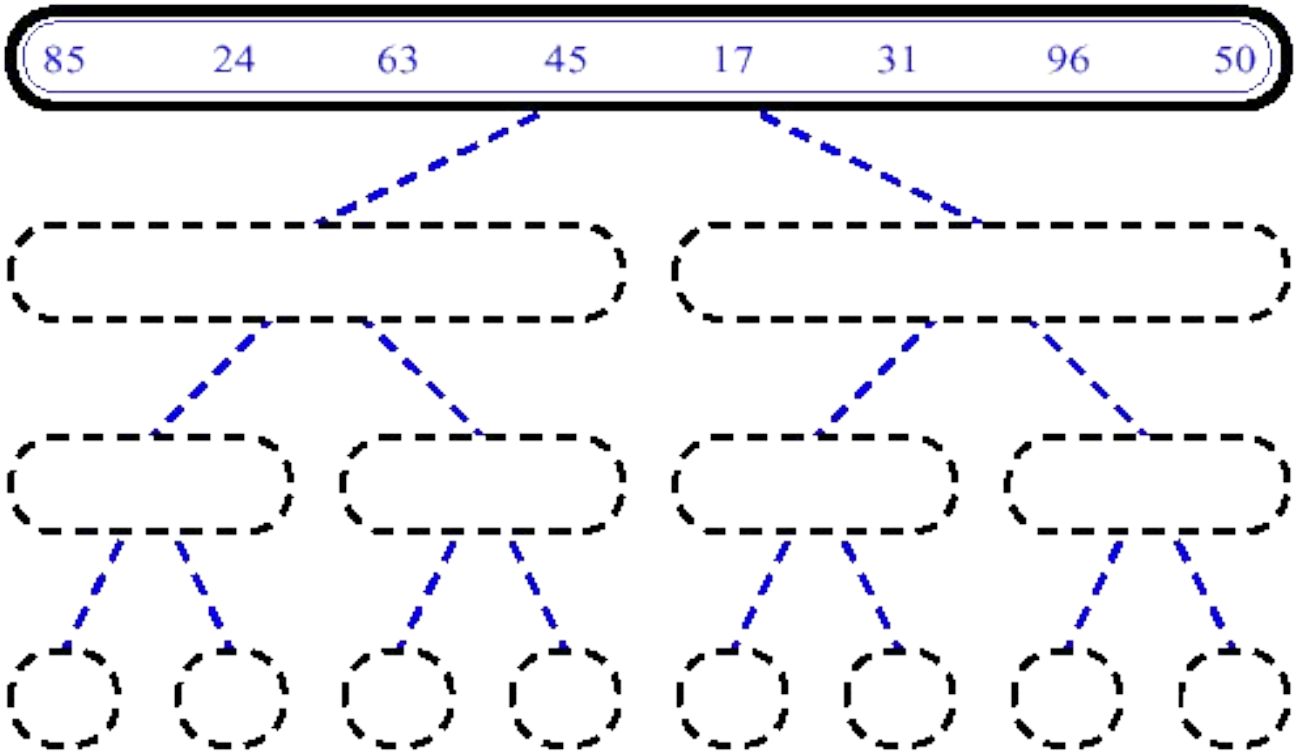
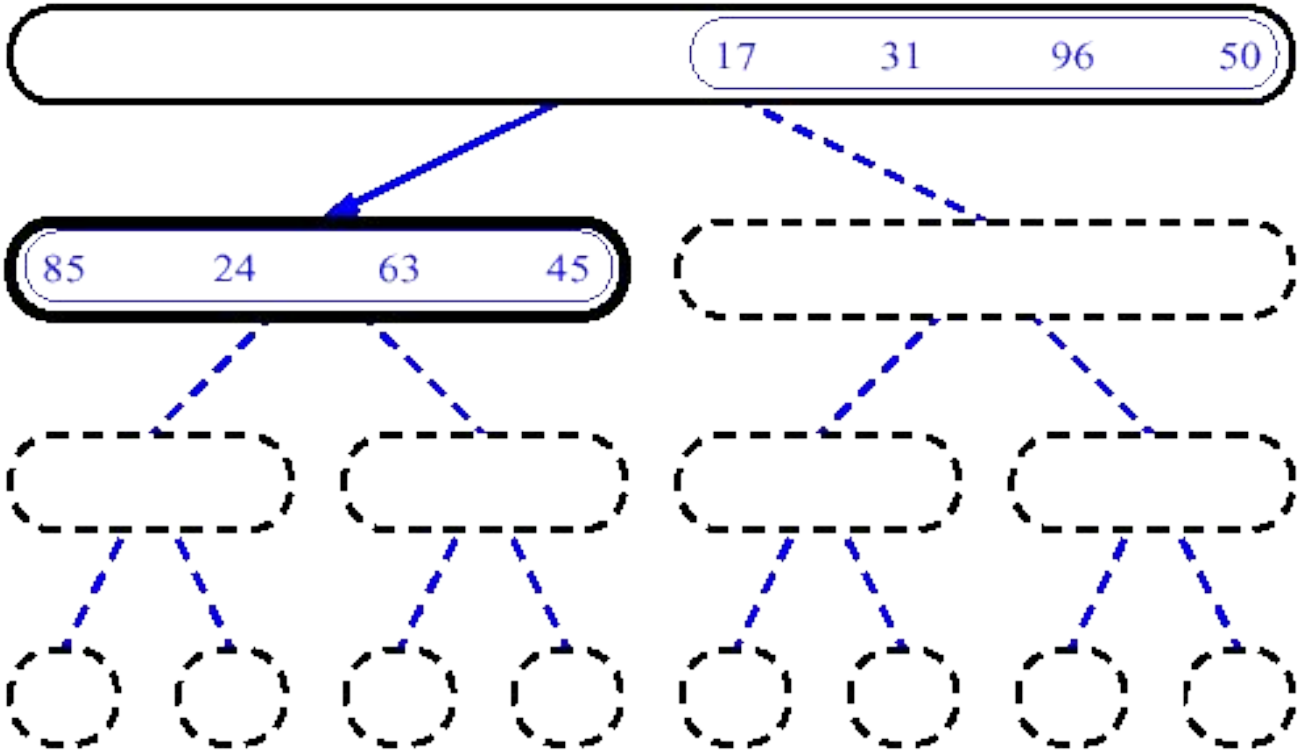
CSE 2021 : Algorithm

Merge Sort

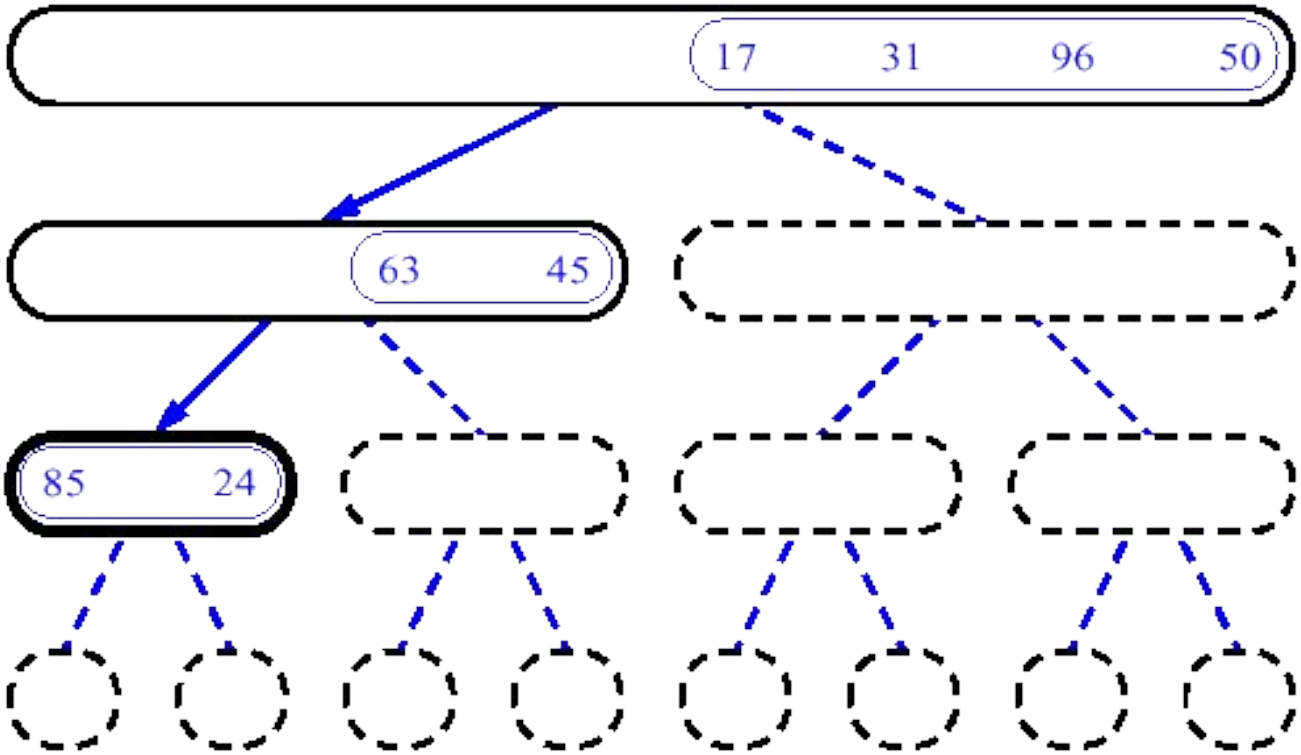
MergeSort (Example) - 1



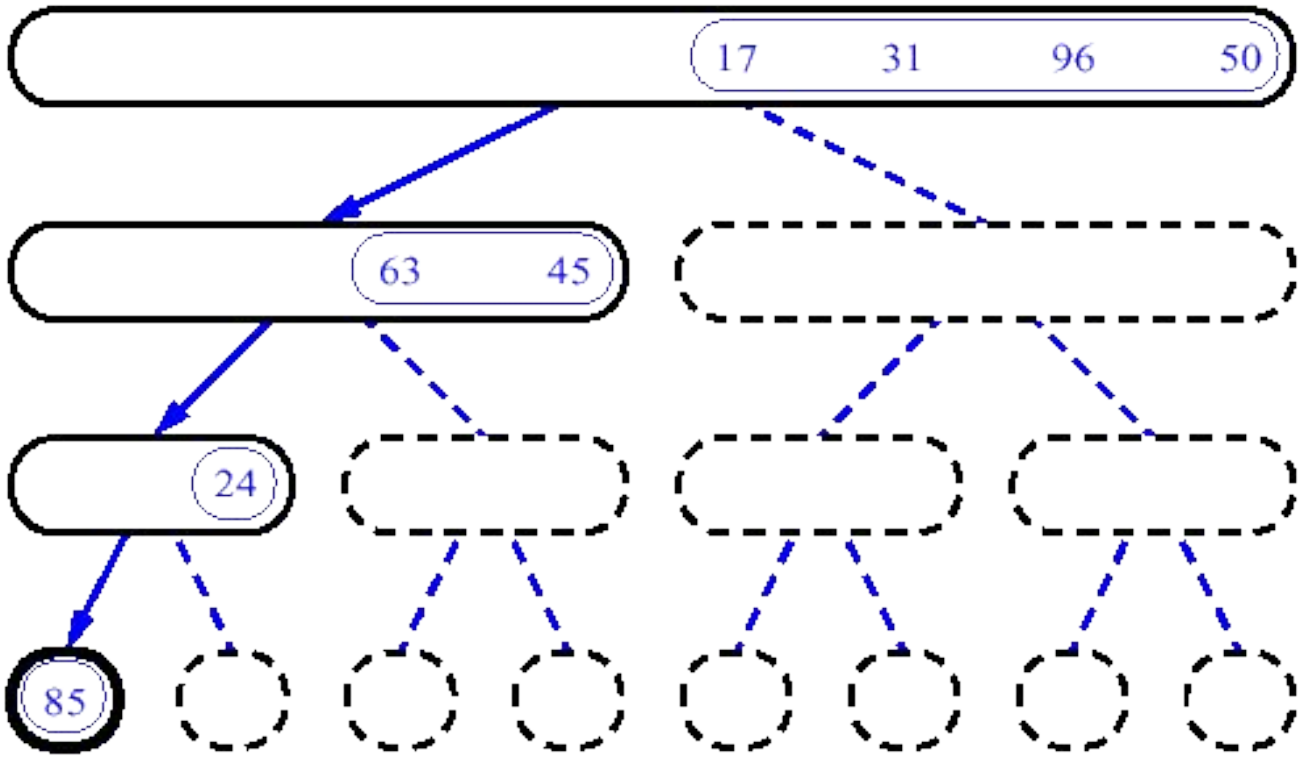
MergeSort (Example) - 2



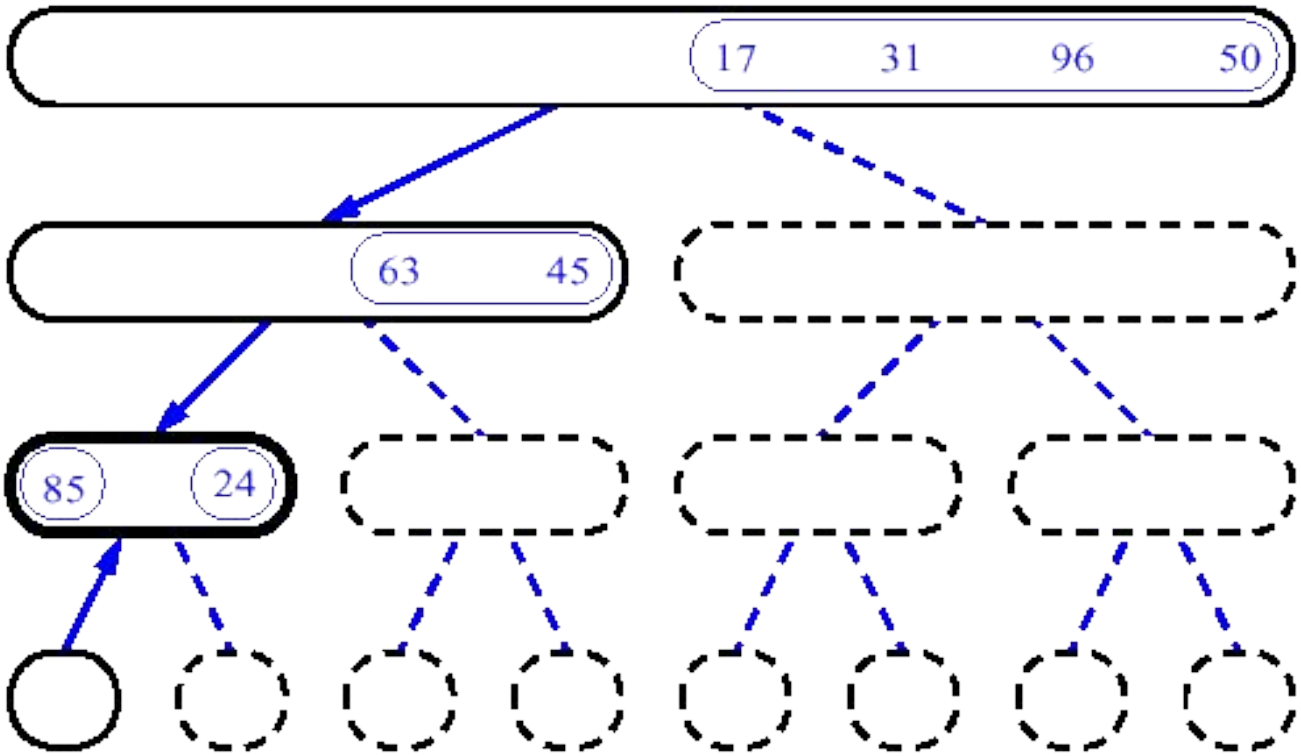
MergeSort (Example) - 3



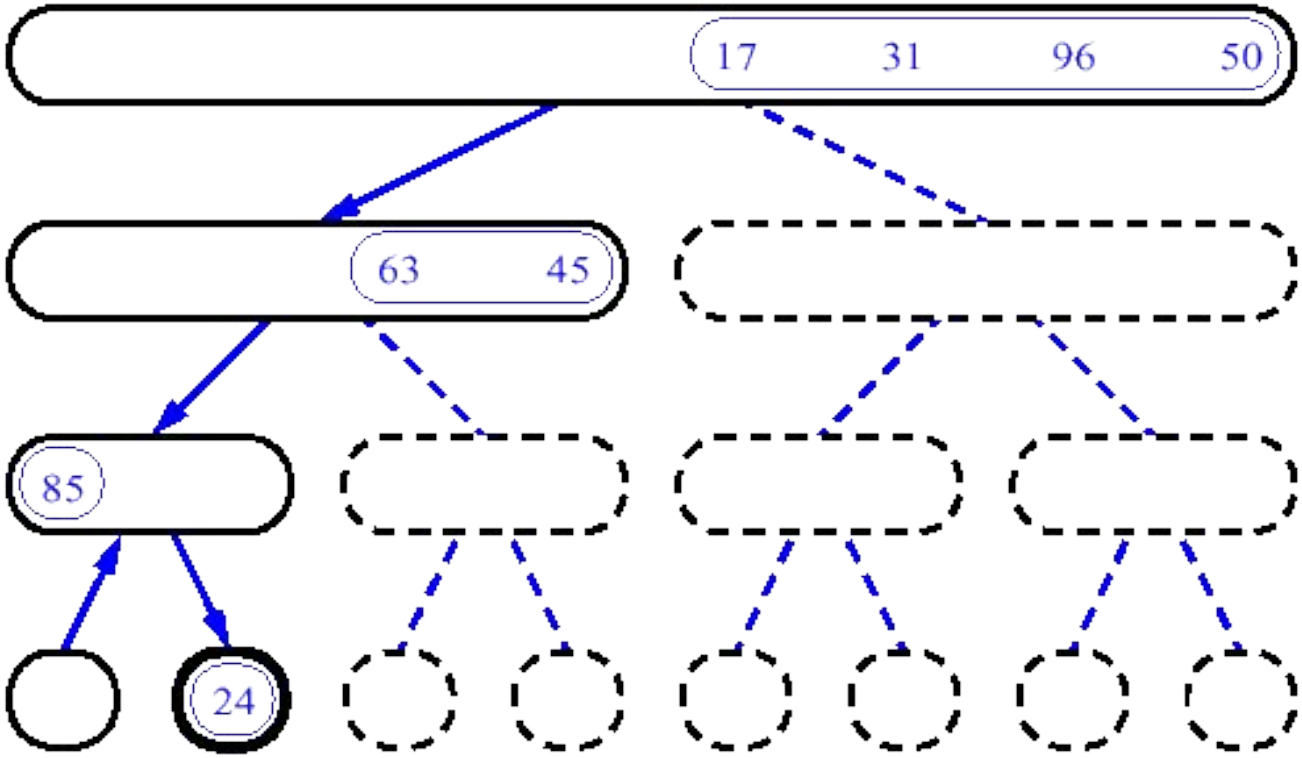
MergeSort (Example) - 4



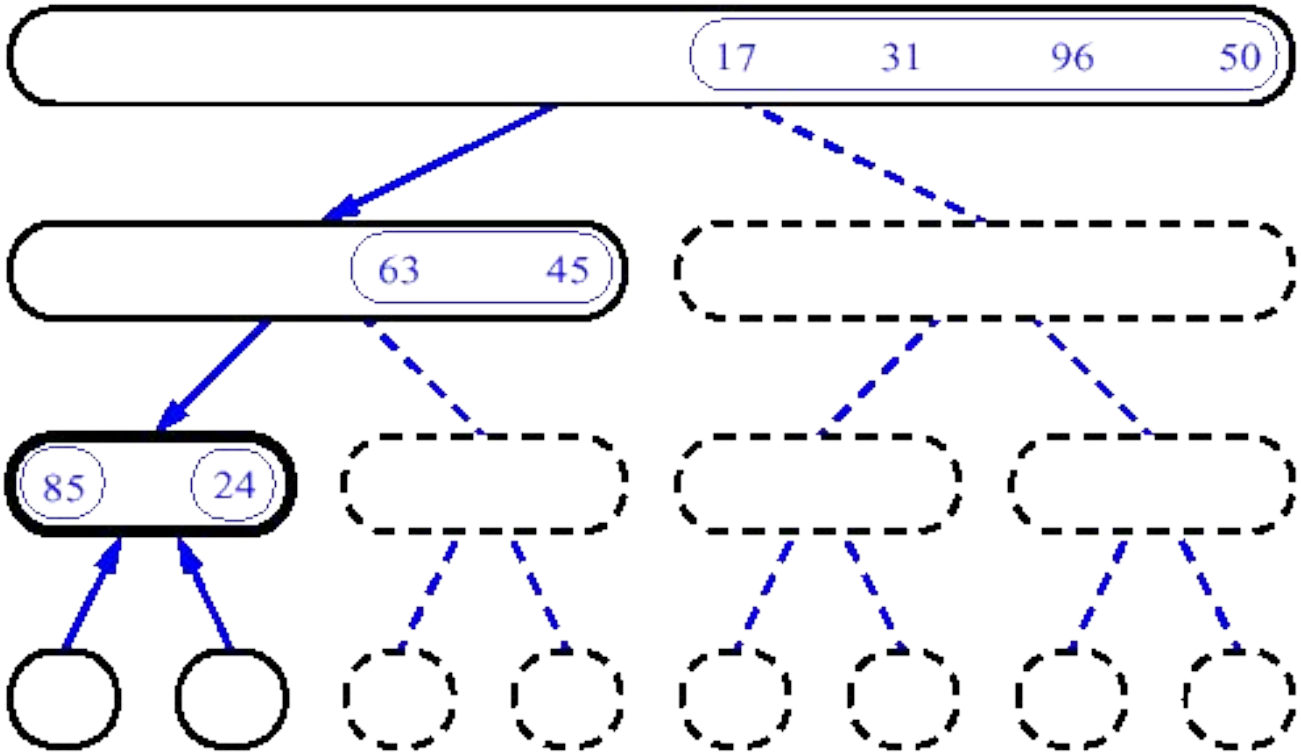
MergeSort (Example) - 5



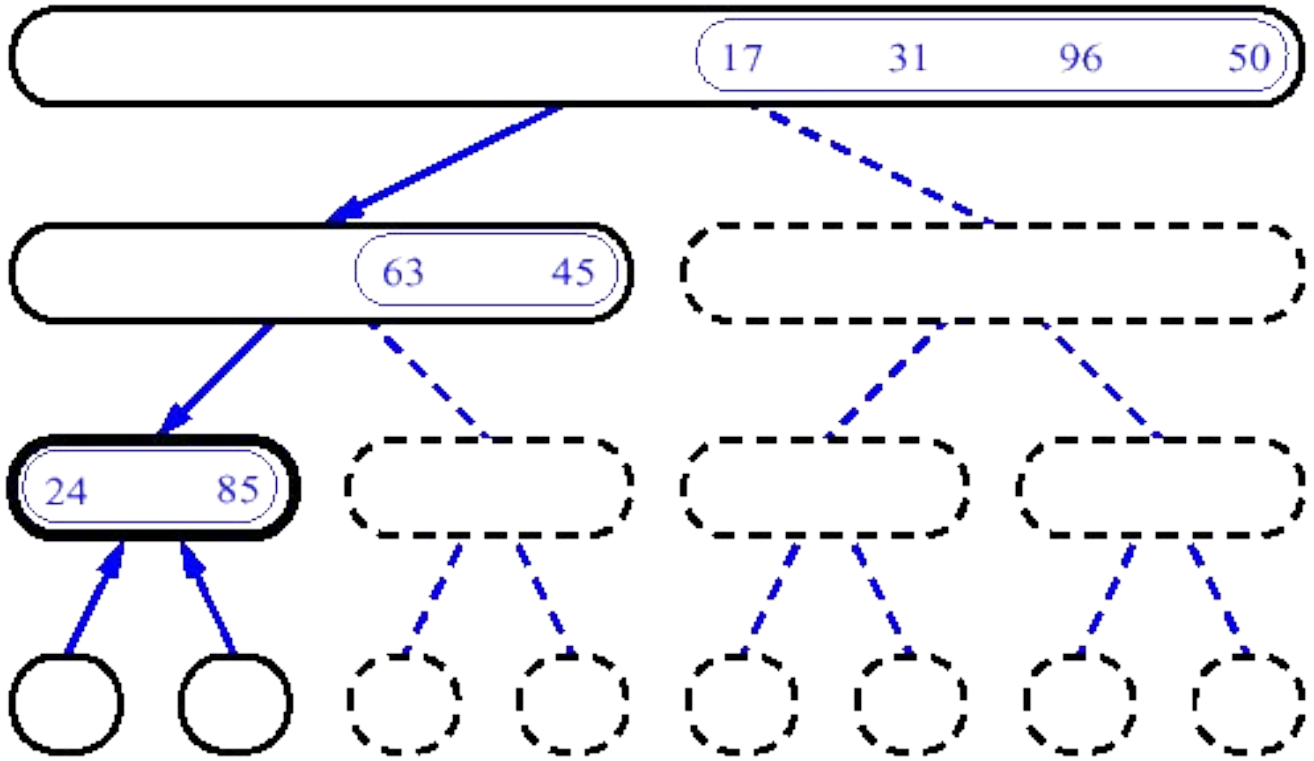
MergeSort (Example) - 6



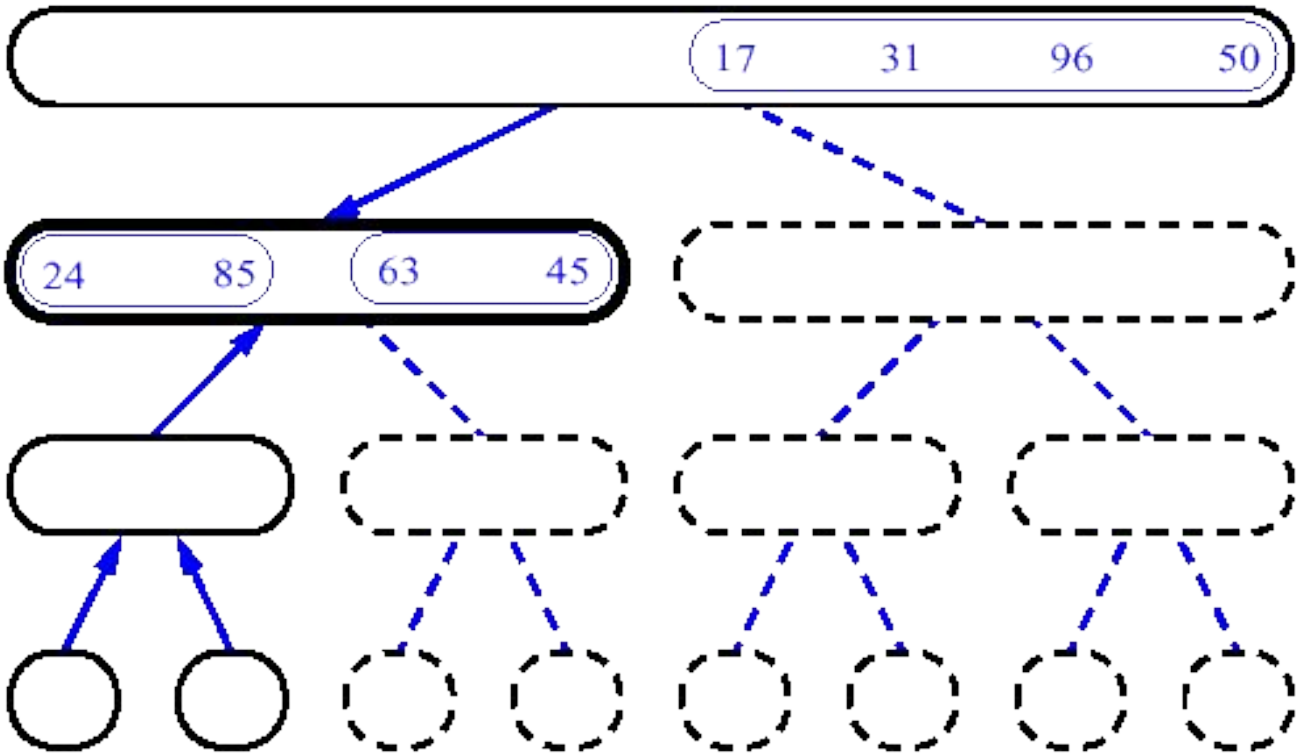
MergeSort (Example) - 7



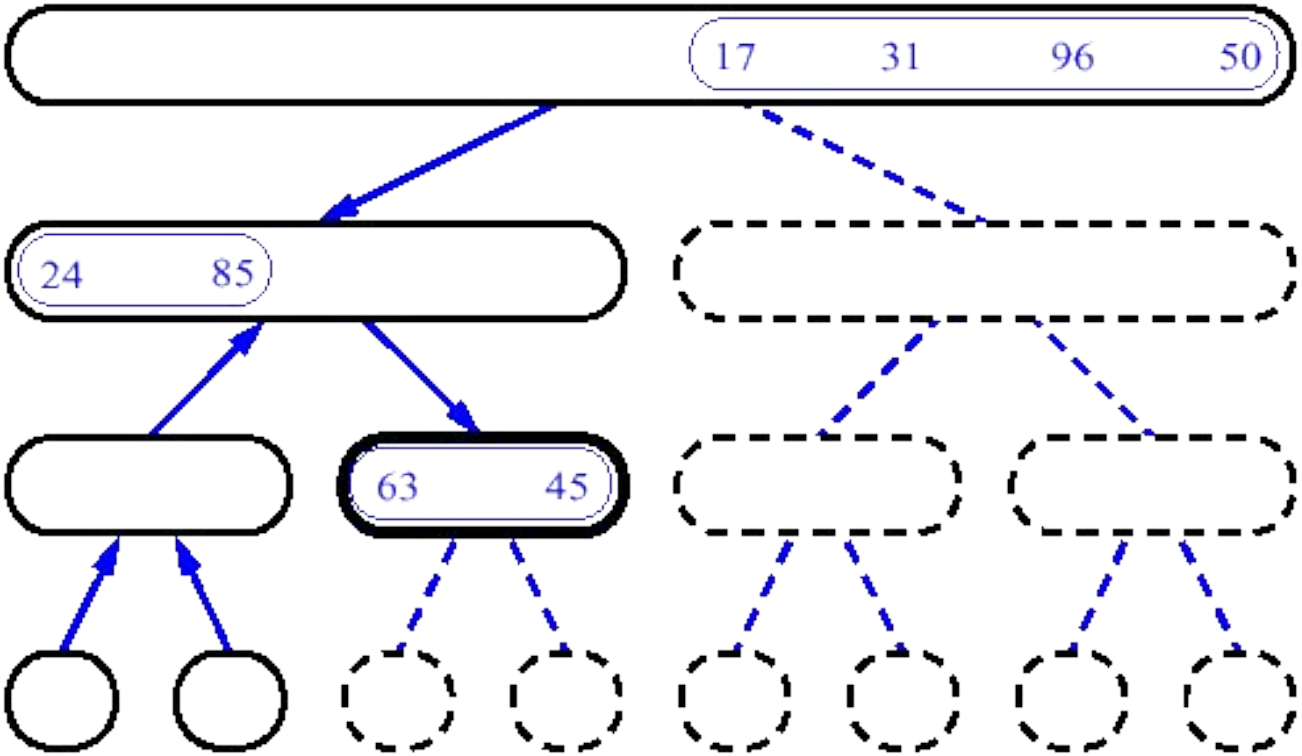
MergeSort (Example) - 8



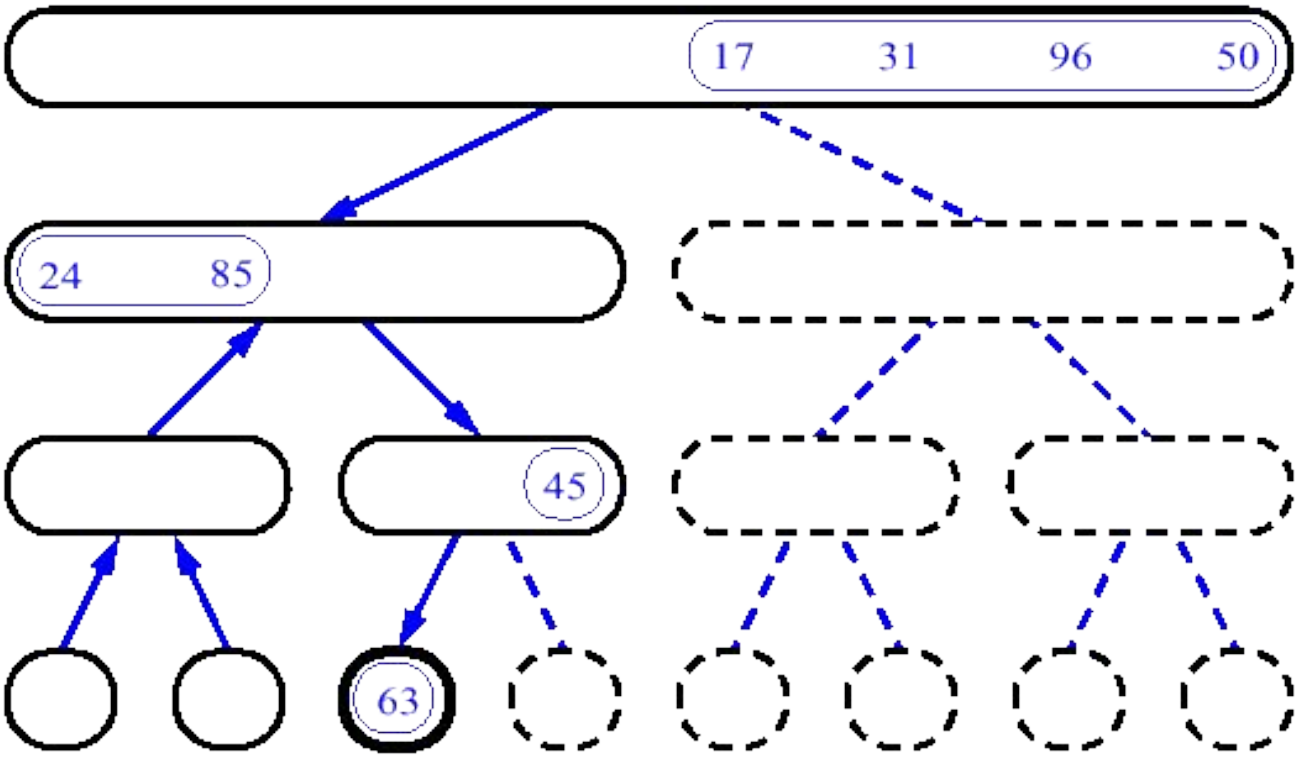
MergeSort (Example) - 9



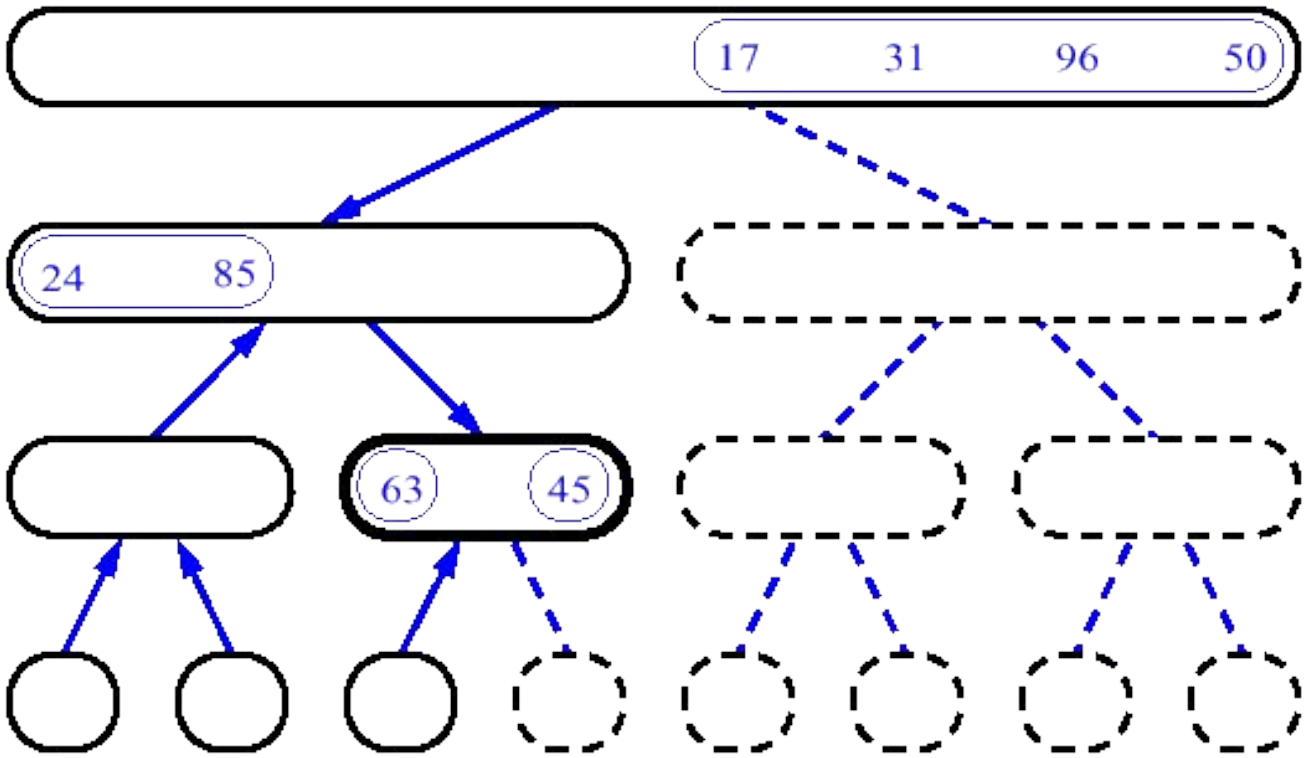
MergeSort (Example) - 10



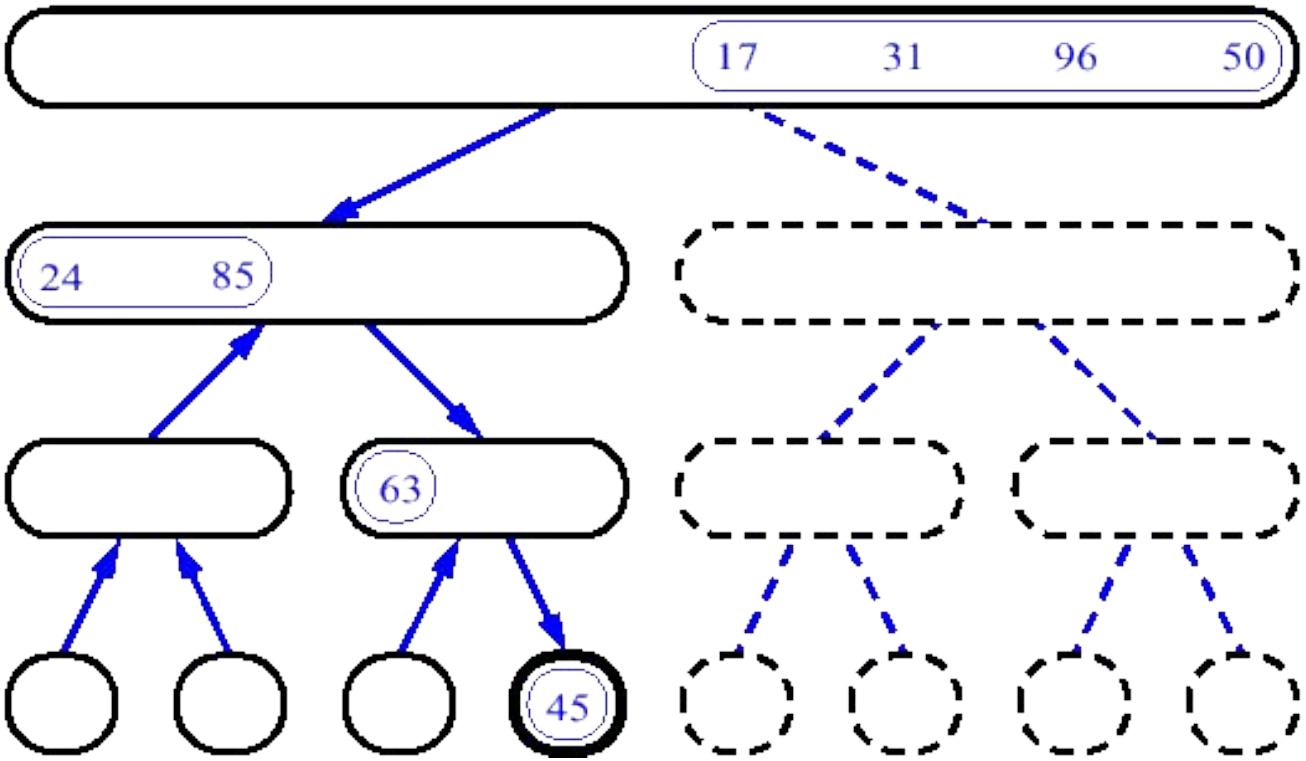
MergeSort (Example) - 11



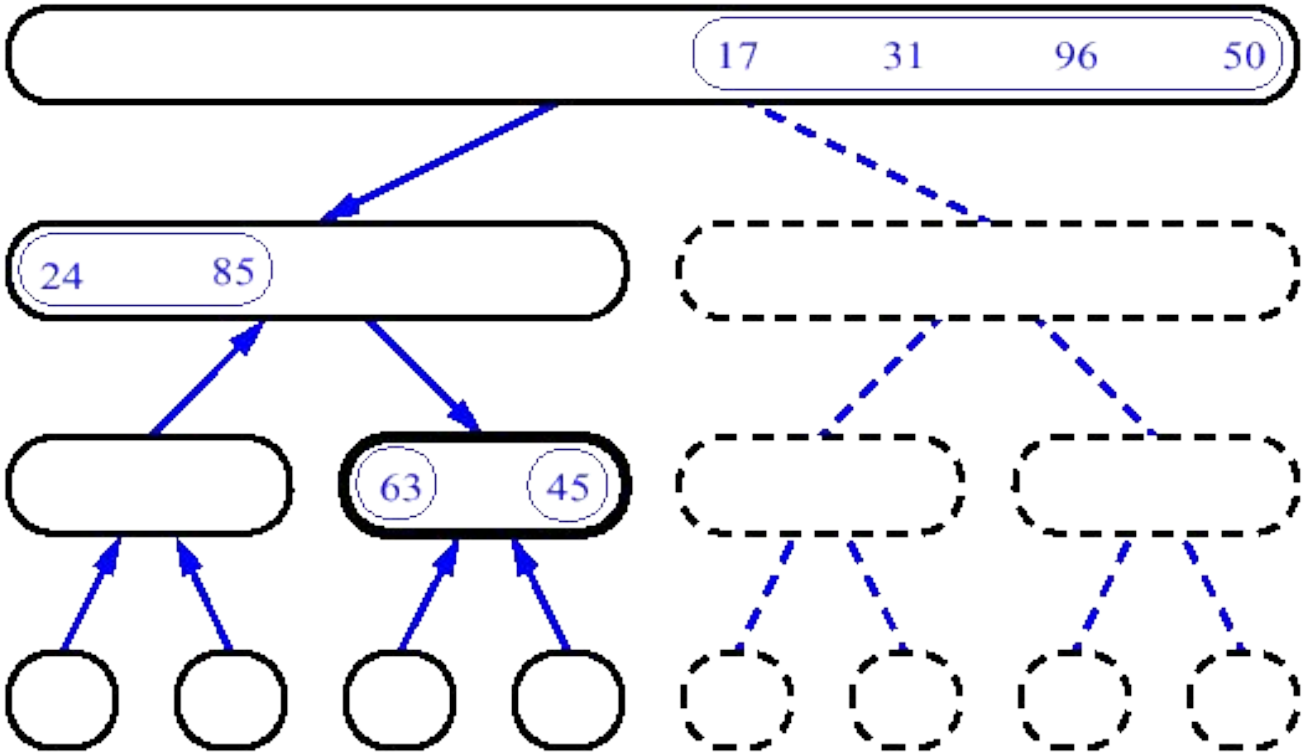
MergeSort (Example) - 12



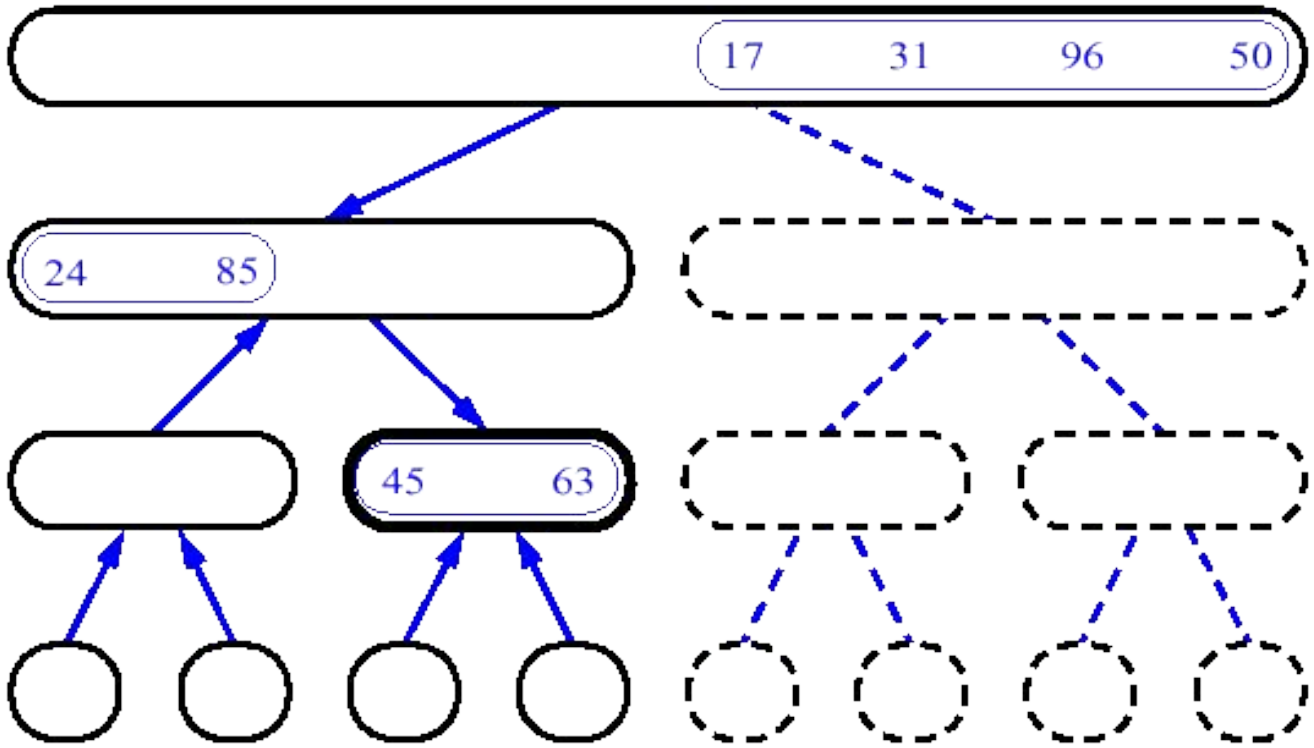
MergeSort (Example) - 13



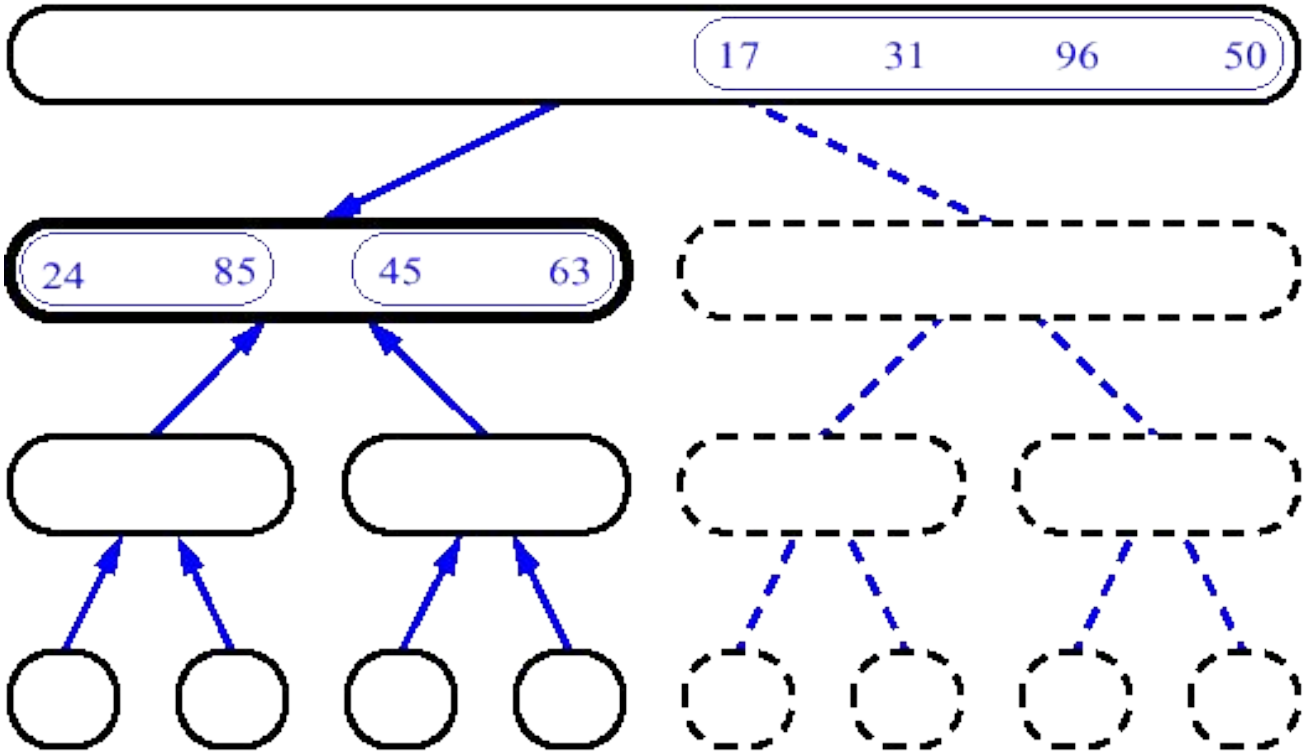
MergeSort (Example) - 14



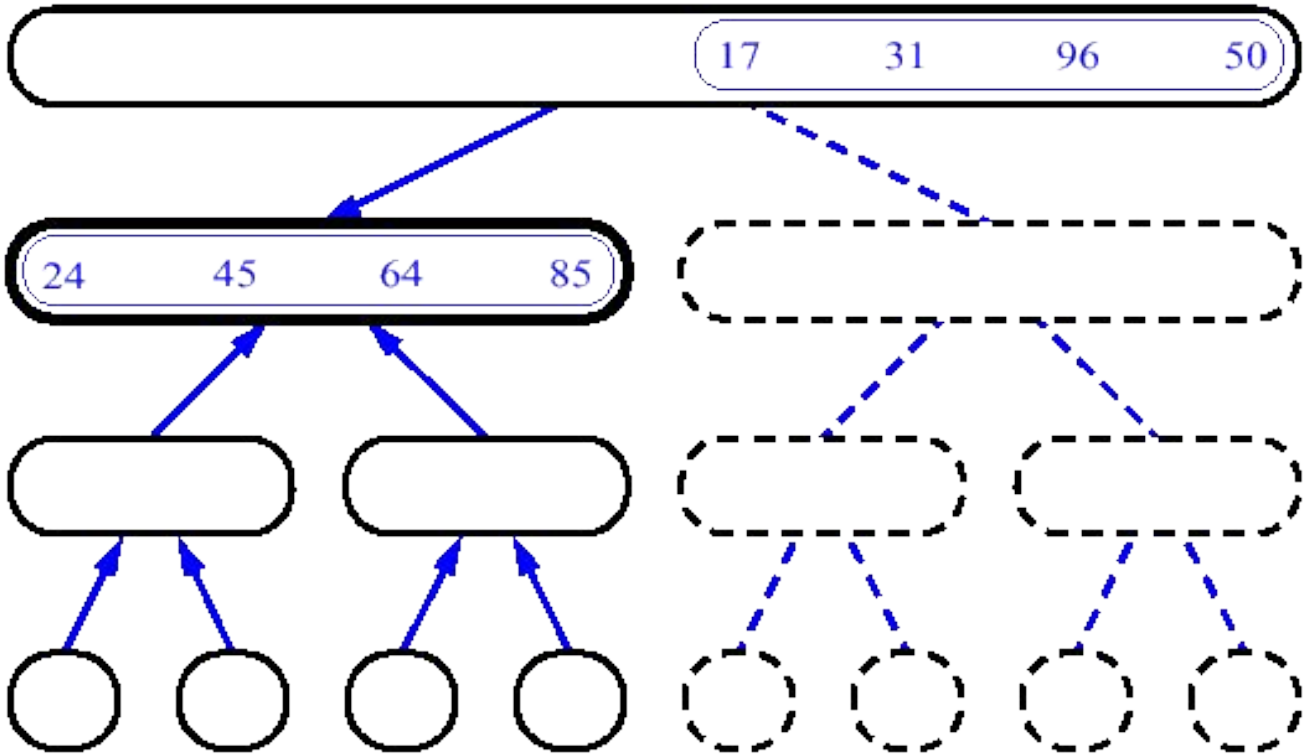
MergeSort (Example) - 15



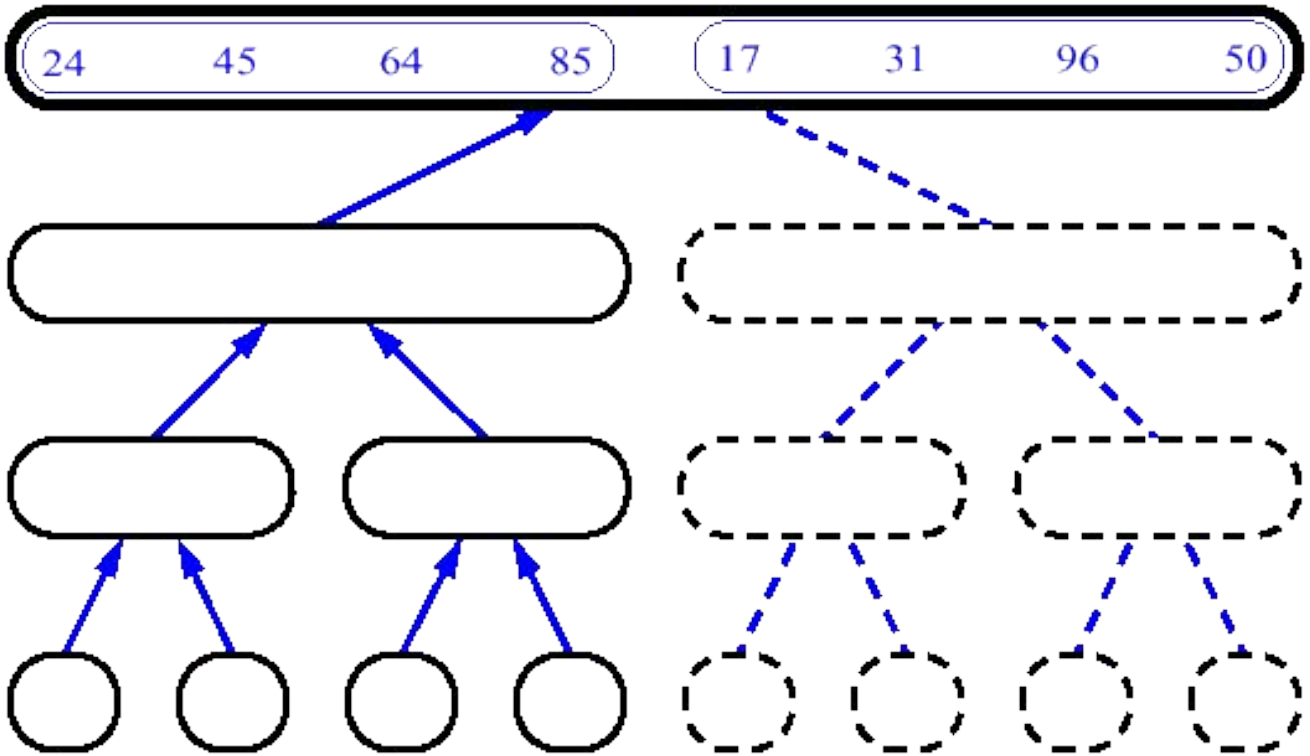
MergeSort (Example) - 16



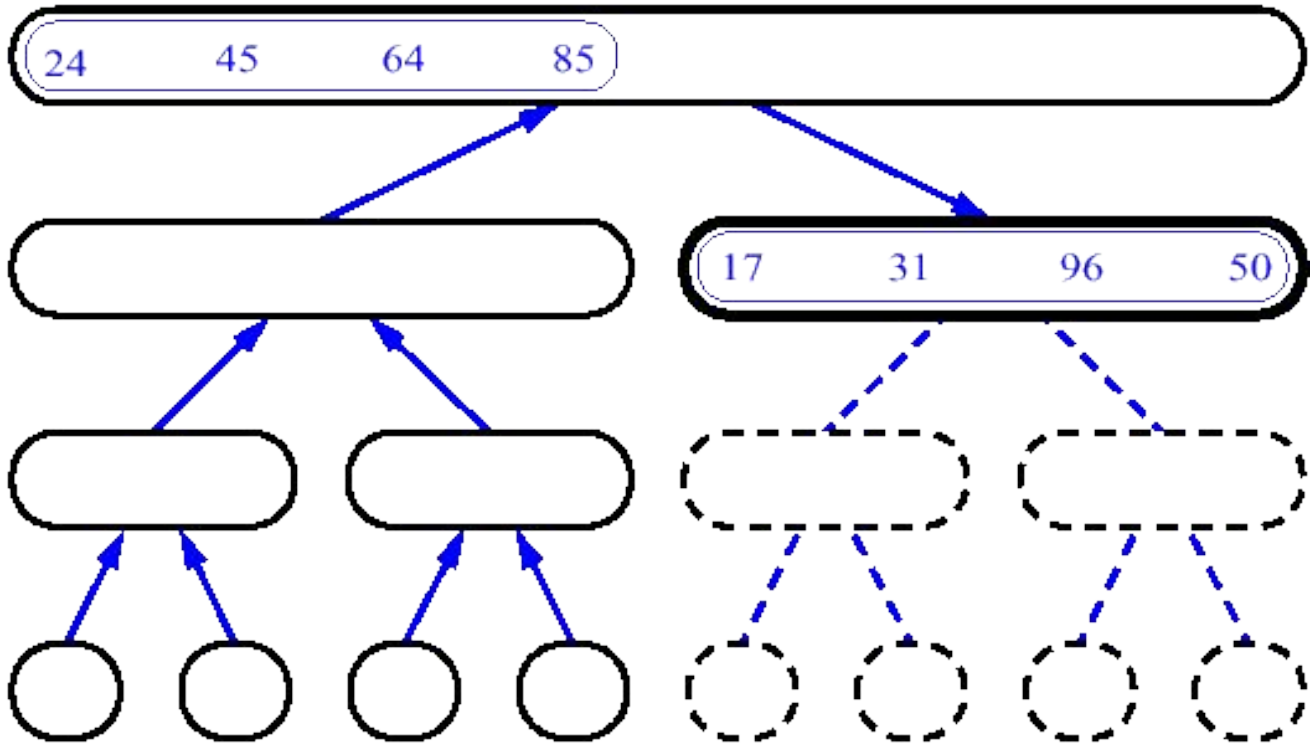
MergeSort (Example) - 17



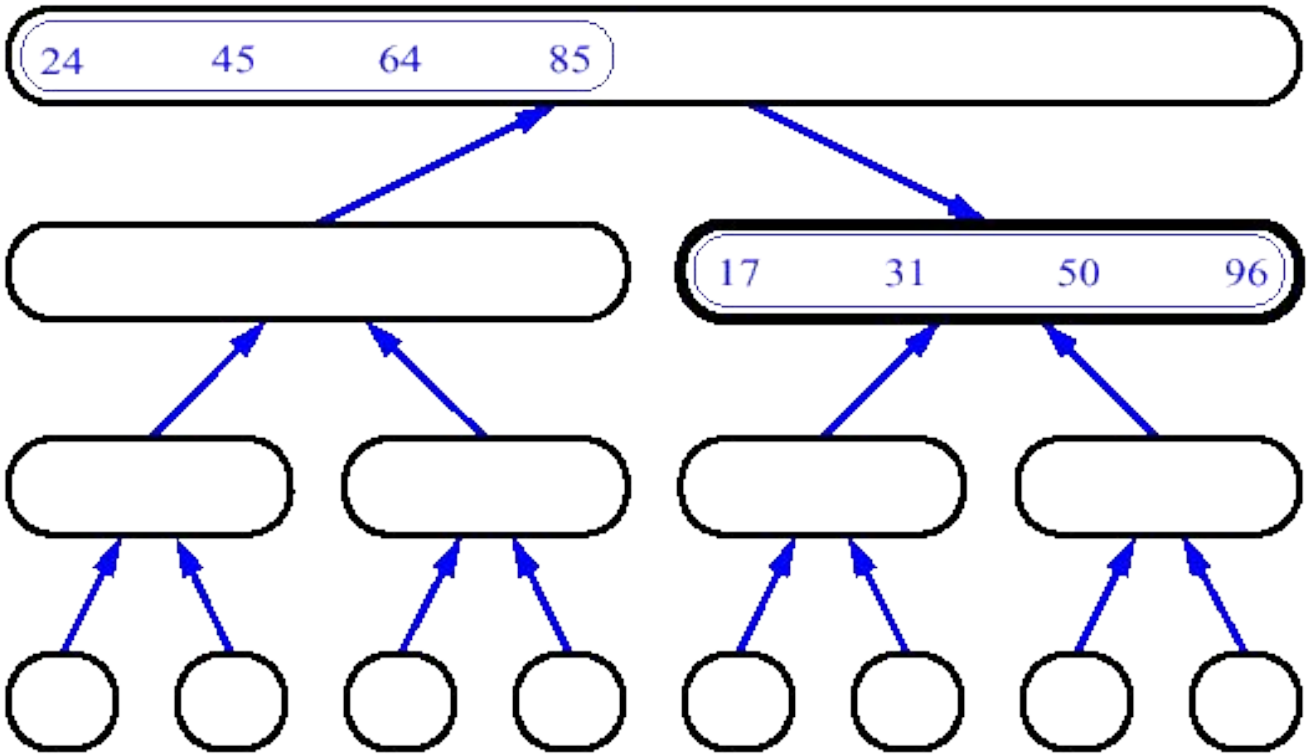
MergeSort (Example) - 18



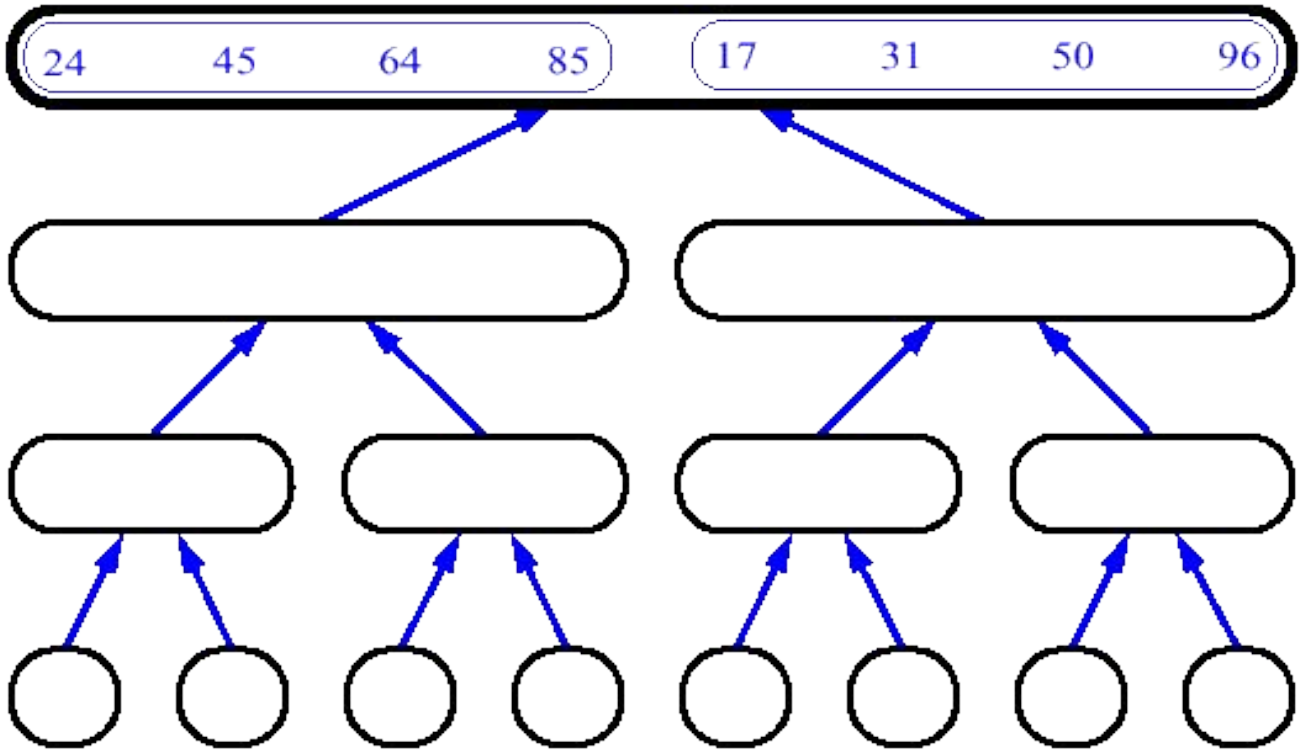
MergeSort (Example) - 19



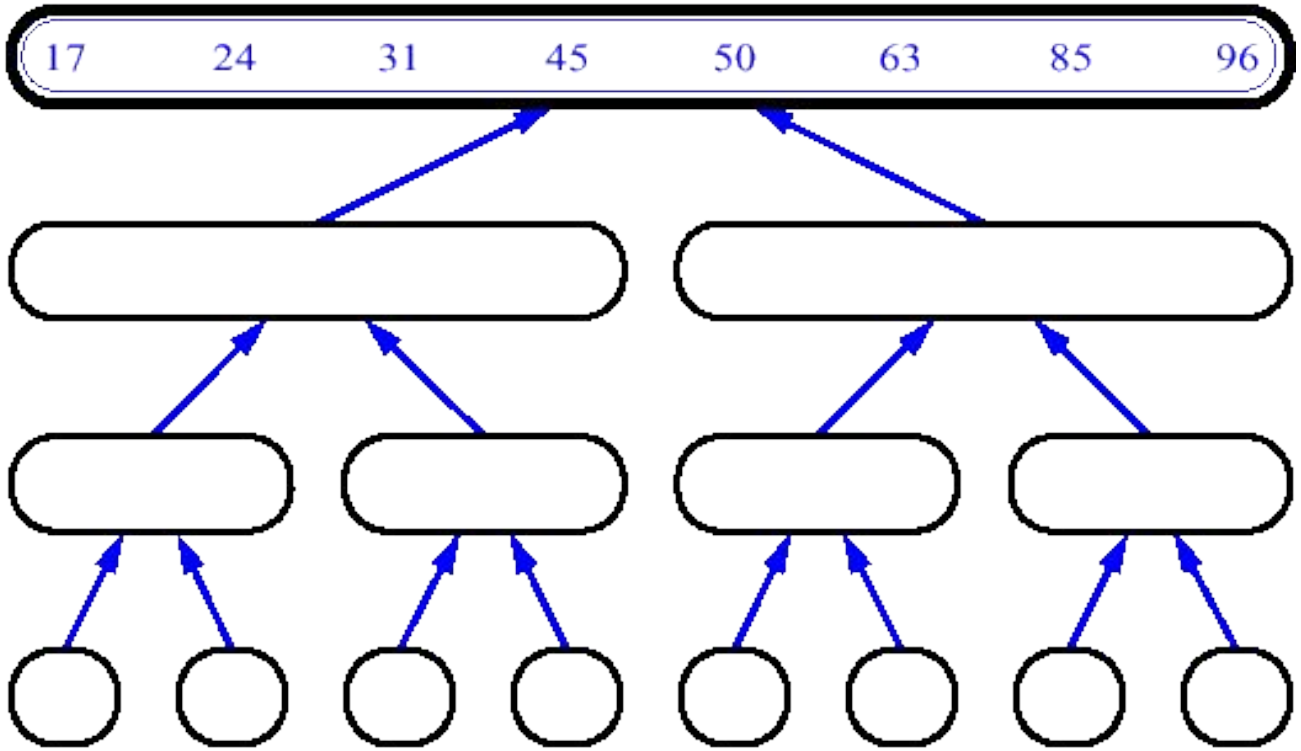
MergeSort (Example) - 20

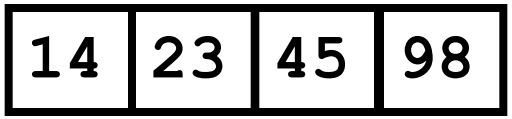


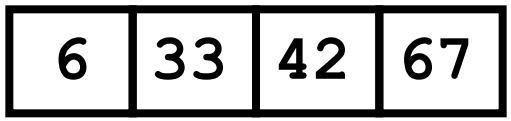
MergeSort (Example) - 21



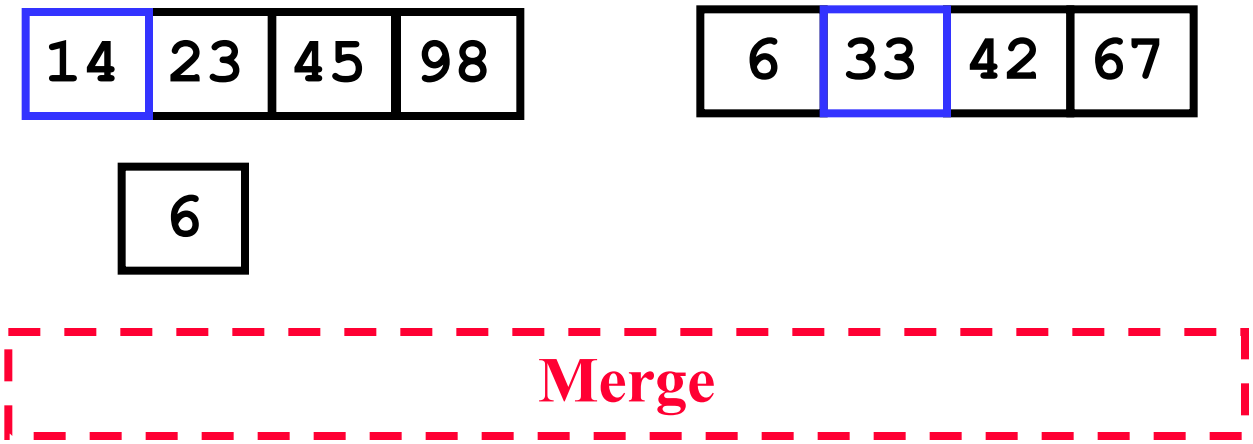
MergeSort (Example) - 22

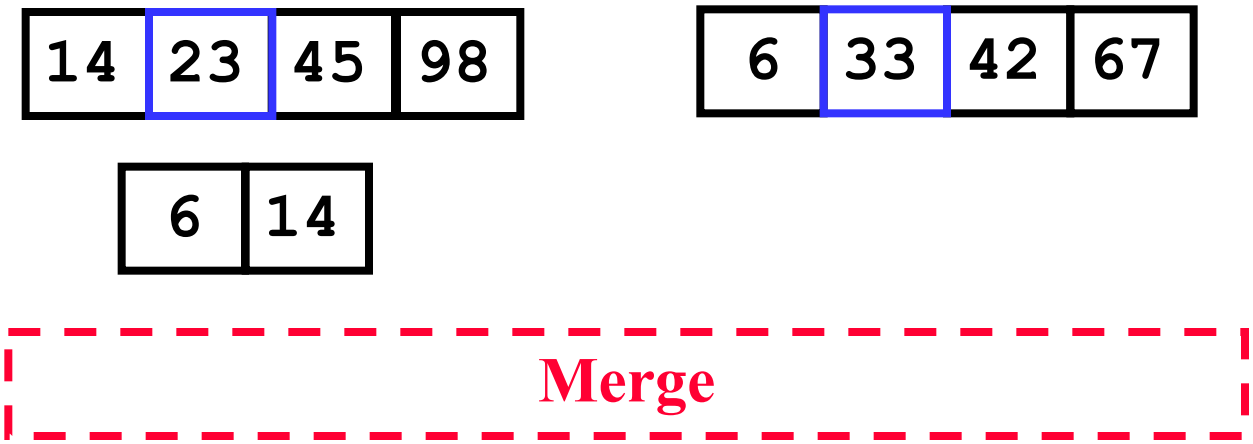



14
23
45
98


6
33
42
67

Merge


14
23
45
98
6
33
42
67
6
Merge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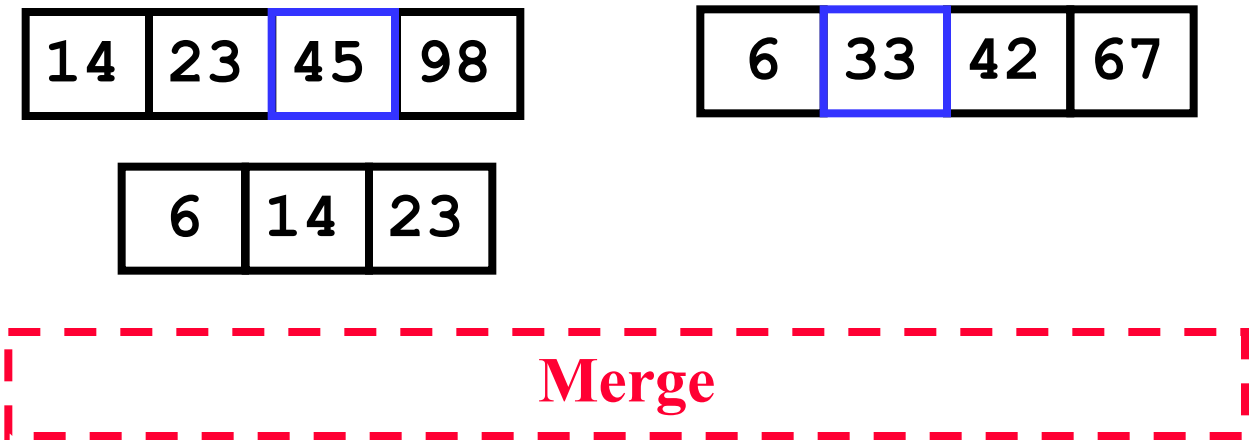
Merge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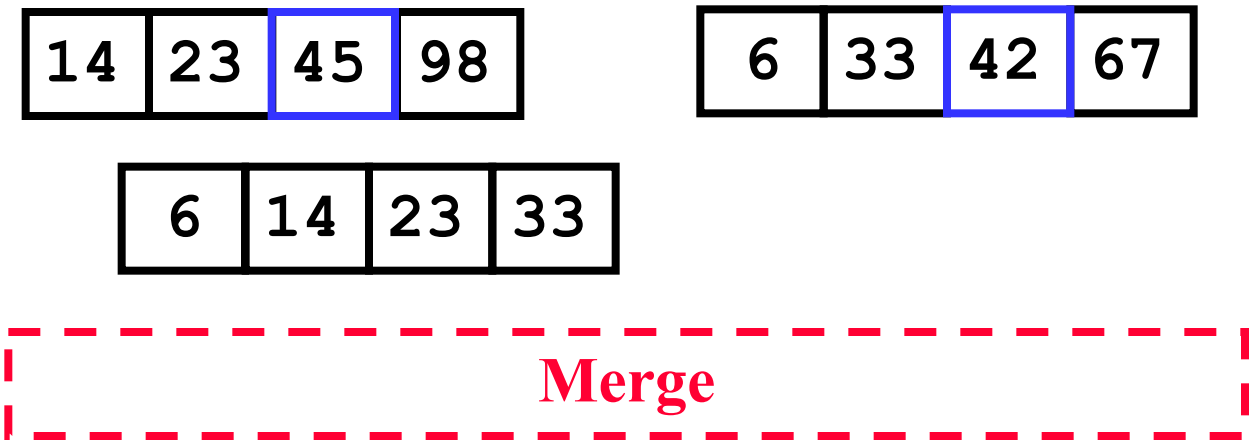
6 33 42 67
6 14 23
Merge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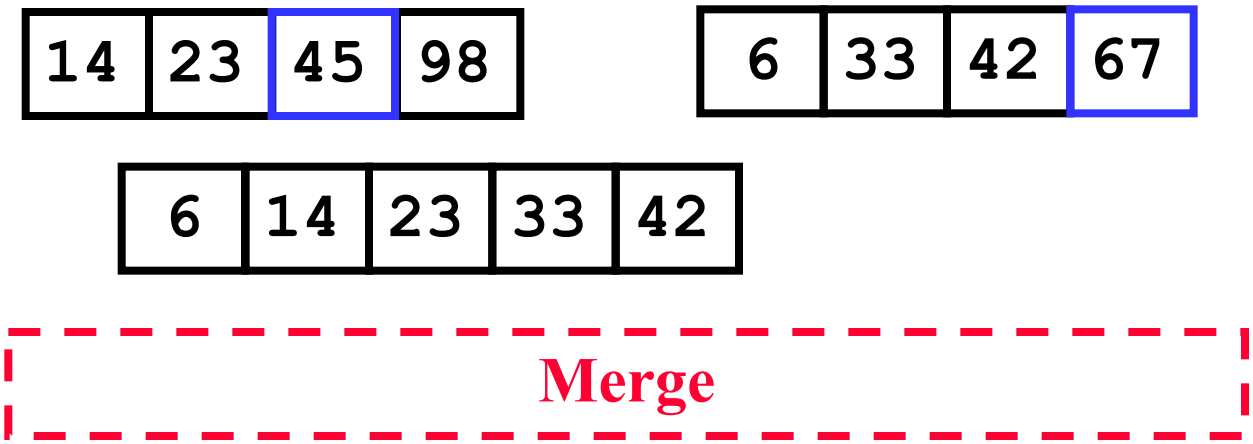
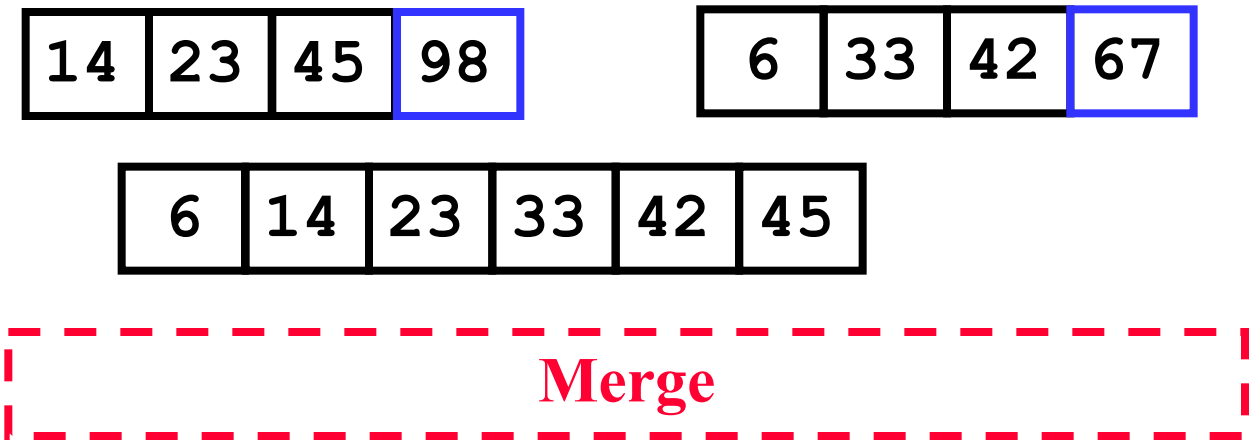
6 33 42 67
6 14 23 33
Merge


14 23 45 98
6 33 42 67
6 14 23 33 42
Merge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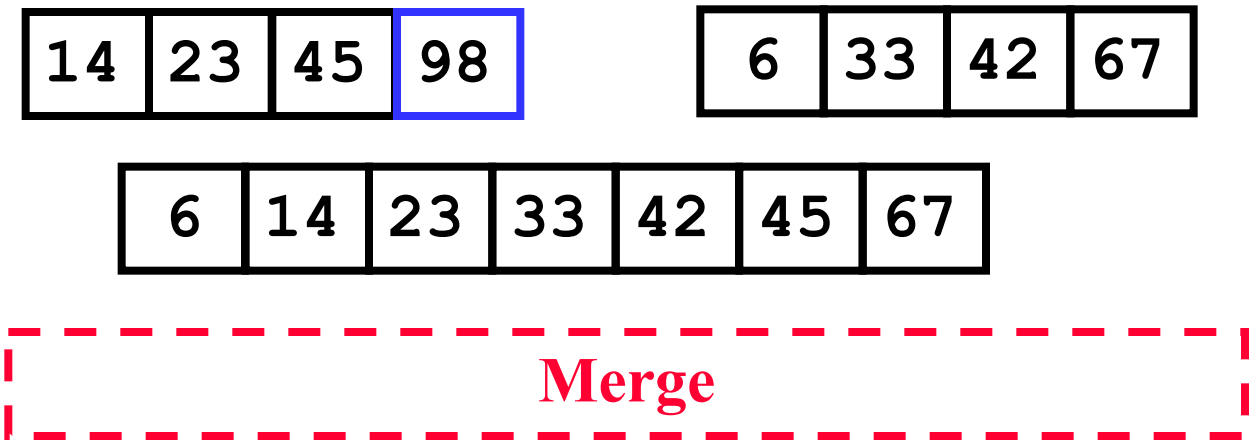
6 33 42 67
6 14 23 33 42 45
Merge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6 33 42 67
6 14 23 33 42 45 67
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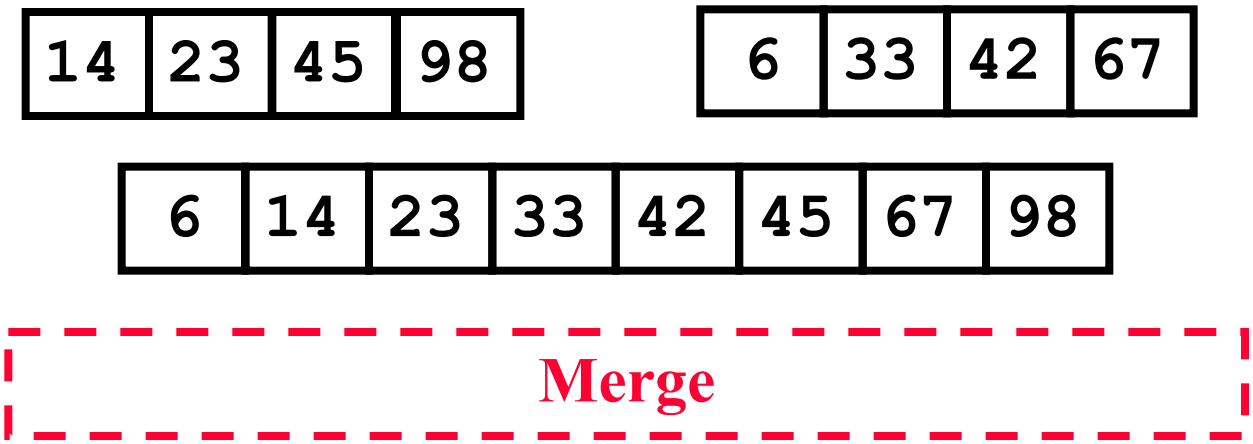
14 23 45 98
6 33 42 67
6 14 23 33 42 45 67 98
Merge

Time Complexity

- Best case : O(nlogn)
- Average case : O(nlogn)
- Worst case : O(nlogn)

This is because merge sort always divides the array in two halves and take linear time to merge two halves.

Space Complexity

- O(n)

THANK YOU