

13. [4] Now show the result of three successive deleteMin / pop operations from the prior heap:

3	6	5	11	12	10	15	14			
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5	6	10	11	12	14	15				
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6	11	10	15	12	14					
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14. [4] What are the average complexities and the stability of these sorting algorithms:

Algorithm	Average complexity	Stable (yes/no)?
Bubble Sort	$O(n^2)$	yes
Insertion Sort	$O(n^2)$	yes
Heap sort	$O(n \log(n))$	NO
Merge Sort	$O(n \log(n))$	yes
Radix sort	$O(nk)$	yes
Quicksort	$O(n \log(n))$	NO

15. [3] What are the key differences between Mergesort and Quicksort? How does this influence why languages choose one over the other?

First Merge is stable while Quick is not. Also Quick is an inplace sorting which requires less additional storage, while merge is not in place requiring more.

This influences languages to choose one over the other because of the running time of the sort and the additional memory usage.