

# Proj 3

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- The asymptotic time complexity of the heap sort algorithm on an array that is already sorted is  $O(n \log n)$ . In "buildHeap()" it will do nothing. Each time pop the top of the heap the time complexity is  $O(\log n)$ . The asymptotic time complexity on an array that is in reverse order is  $O(n \log n)$ . The reason is as same as above. The best case is  $O(n)$  and the numbers of input should all be equal.