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Lab 6

CPSC 2150

b) Since there are n elements in the data set, we have to heapify the data set n times. Therefore, time complexity is O(nlogn).

c) Heapsort is an in-place sorting algorithm which means we do all the changes in the same data set. Since there are no additional lists or arrays other than the original array, space complexity is constant. Therefore, space complexity is O(1).

d) I think using a min-heap would not change the time complexity. Program would sort the array in descending order since we use a min-heap. Then at the end, in a single for loop, we would reverse the array. After reversing the array, we would have something like O(nlogn + n). In this case, nlogn is the dominant term. Therefore, time complexity would be still O(nlogn).