Assignment #7

Due Date: Saturday, October 31 at 11:59pm

Submit: eLearning

Late Policy: -10 points per hour late

Instructions: This is an individual assignment. Answers should be your own work.

Chapter 7

1) For the list shown below, illustrate each of following sorts as shown in the slide(s) listed:
   64, 32, 79, 83, 67, 46, 96, 55, 68, 12

   10 points: a) Insertion sort (slide 5)
   15 points: b) Shell sort with sequence 5,3,1 (slides 14, 15, 16)
   10 points: c) Merge sort (as slide 30)
   10 points: d) Radix sort (as slide 59).

   Note: continue each until the final list is sorted!

15 points
2) For the list shown below, demonstrate the following sort:
   64, 12, 68, 23, 97, 38, 81, 76, 55, 32, 48, 29, 46

   Quick sort (as slide 45). Use median-of-three and continue
         until the list is sorted. If a partition size is <= 3, just
         put the partition in sorted order.

10 points
3) For the list shown below, demonstrate the following sort:
   8, 7, 4, 2, 5, 5, 2, 4, 5, 7, 8
   Bucket sort (as slide 57).

10 points
4) For the list shown below, demonstrate the following sort:
   10, 1, 5, 2, 6, 8, 4, 10, 6, 6, 2, 4, 1, 8, 7, 3
   External sort (as slide 61). Use a run size of 4.

   Note: continue until the final list is sorted!

10 points
5) For the list below, what runs would be created if M=3 using
   replacement selection?

   10, 1, 5, 2, 6, 8, 4, 10, 6, 6, 2, 4, 1, 8, 7

10 points
6) Suppose 4 items are to be compared. How many leaves would the decision
   tree have for this number of items? How many comparisons at worst would
   it take to sort them?

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