In-Class Sorting Assignment

Grades published

Immersive Reader

Due: Thursday, May 15, 2025 at 11:59 pm

(1) Sort the sequence 3, 1, 4, 1, 5, 9, 2, 6, 5 using insertion sort. Show the intermediate steps after each pass (see figure 7.1 for an example).

(2) Show the result of running Shellsort on the input 9, 8, 7, 6, 5, 4, 3, 2, 1 using increments {1, 3, 7}. Show the intermediate steps after each pass (see figure below for an example).

Original	81	94	11	96	12	35	17	95	28	58	41	75	15
After 5-sort	35	17	11	28	12	41	75	15	96	58	81	94	95
After 3-sort	28	12	11	35	15	41	58	17	94	75	81	96	95
After 1-sort	11	12	15	17	28	35	41	58	75	81	94	95	96

Figure 7.3 Shellsort after each pass, using {1, 3, 5} as the increment sequence

Image from Weiss, M. A. (2014). *Data structures and algorithm analysis in Java*. Pearson Education, pg. 275.

(3) Show the result of running Quicksort on the input 30, 9, 7, 46, 14, 5, 22, 1, 6, 12, 17. Show the intermediate steps then combining repeatedly back into a single sorted array.

(4) Sort the sequence 3, 12, 4, 1, 5, 9, 2, 6, 15, 1, 14 using mergesort. Show the intermediate steps splitting arrays down to a single element, then merging them repeatedly back into a single sorted array.

Posted Thu May 15, 2025 at 12:30 pm

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