CS608 Programming Assignment 2

Sorting – Bubble sort, Selection sort and double-ended selection sort

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This assignment has two parts: Part 2A and Part 2B. If you successfully complete both, you will receive 15 points. If you successfully complete only one (either one), you will receive 10 points.

Programming Assignment 2A: Sorting

Write a Java program to read a file, **inputData2A.txt** and create an array with these elements. Sort the elements using any one of the three methods discussed this week. The **inputData2A.txt** contains 100 integers.

Output to contain:

After you sort the array, print A[10], A[25], A[50], A[70], and A[90].

Note: Java provides a built-in method sort(). Use this method to sort the given array and verify you have done sorting correctly by looking at the values of A[10], A[25], A[50], A[70], and A[90].

Programming Assignment 2B: Sorting – All three methods

Write a Java program to read a file, **inputData2B.txt** into an integer array. The **inputData2B.txt** file contains 1000 integers. Make copies of the array for three methods of sorting. Sort by using each of the three methods discussed this week: Bubble sort, Selection sort and double-ended selection sort.

For each method, compute (1) time taken by the algorithm to sort and (2) number of comparisons made (count only when you compare elements).

Output to contain:

After you sort the array, print A[100], A[125], A[250], A[700], and A[900].

For each method,

- Time taken by the algorithm to sort
- Number of comparisons made

Note:

Java provides a built-in method sort(). Us this method to sort the given array and verify you have done sorting correctly by looking at the values of A[100], A[125], A[250], A[700], and A[900].

You may want to use Java built-in method, **System.nanoTime(),** to calculate time elapsed.

General instructions:

- If your program has several classes, include all of them in the same file and name your Java file CS6082Axxxxx.java (Assignment 2A) and CS6092Bxxxxx.java (assignment 2B), where xxxxx is your last name. **Example**: If your name is John Smith, name the file CS6082Asmith.java and CS6029Bsmith.java. **DO NOT SEND ZIP files.**

- Output must include: **Your name, course number and date (use Date class).** If any of the above items are missing, you will not receive full credit.

- Send your Java file as email attachment to CS608Assignment@gmail.com. Include your name and assignment number in the email subject.

Note: I will run your programs and grade them. If your programs do not compile (that is, show syntax errors, you will receive 0 for the programming assignment).