**PJ 8 – Sorting Comparing**

Please write a **Java** program to compare the following **three** famous sorting algorithms:

1. **Radix Sort,**
2. **Merge Sort,** and
3. **Quick Sort.**

You must use 7 integer arrays with 250 elements for each array. Their data must be pre-loaded. In other words, these 7 arrays represent 7 test cases for the comparison. We are comparing the number of **swapping** operations being used by each sorting algorithm.

Please preload those 7 arrays with integers. For example, array 1 can be fully sorted. Array 2 can be in descending order. Array 3 can be in random order. Array 4 can be partially sorted. Array 5 can be totally unsorted. Array 6 can be almost sorted. Array 7 can be sorted in some sections.

Please do not use random number generator to fill in the 7 arrays because (1) random number generator will generate the same number many times – causing duplicate numbers in an array, and (2) you cannot tell the actual contents in those arrays. Normally, we do not allow duplicate numbers in an array to be sorted.

Please be careful that you do not pass the same array, which has been sorted by one of the sorting programs, to the next sorting program to run. Therefore, you should prepare duplicate copies of the same array for 3 different sorting functions to use.

You must provide a comparison table to compare these three sorting algorithms.

Your complete **test output of 7 test cases** must look as follows:

Welcome to the Sorting Analysis System of **Dr. Simon Lin**! 🡸 must use your name!

1=========================================================.

Test Case # Radix Sort Merge Sort Quick Sort

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1

2

3

4

5

6

7

Thank you for using the Sorting Analysis System of **Dr. Simon Lin**! 🡸 must use your name

2=========================================================.

**How to submit your project?**

(1) Each program must be well-documented with block comments and proper line comments. The

beginning of each program must have a block comment to show author, date, and purpose.

The following is an example of block and line comments.

// Author: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡸 You must put your name here

// Date: 🡸 You must put today’s date here

// Purpose: 🡸 You must put your purpose here

(2) You must submit the following two items through Canvas <https://ilearn.laccd.edu/> :

(a) Your source program (for example, CS136\_PJ8**.java** file), and

(b) Your WORD document (for example, CS136\_PJ8**.docx** file) that contains the colored listing of your

Java program, and the complete output of at least **3** test runs of your program (as shown below).

You must not submit a zip file to Canvas.

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**// Please delete everything above this line to make this your Word document to be submitted.**

**PJ 8 Report Your Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**A. The following is my Java program:**

**// Please copy your Java program into here from your Eclipse window. The code must be colored.**

**// You must not copy Java program from your .java file since the code over there is not colored at all.**

**// You must not show screen prints here.**

**B. The following is the complete testing output of my 7 test cases: [You must show 7 test cases.]**

**// Please copy your Eclipse console output into here.**