https://www.programiz.com/dsa/merge-sort

Programming Assignment #1

구현
Implement the following sorting algorithms and to collect time performance measurements on them. 시간성능 측정

1. Insertion sort
2. Heap sort
3. Merge sort
4. Quick sort.(version 1, version 2, version 3)
   version 1: first or last element as a pivot
   version 2: random number as a pivot
   version 3: median of three partitioning as a pivot.
   version 4(optional): your strategy(wisely but efficiently)

The running time of each sorting algorithm must be measured **in two ways:**
A. Count the number of key comparisons, COMPCOUNT.
To obtain this count, it is suggested that you write a function COMPARE(X ,Y), which will perform a comparison between X and Y and increment 비교가 몇 번? COMPCOUNT.
Then, wherever you need to perform a key comparison in your algorithms, you simply make a call to this function.
B. Use the actual measured CLOCK time. 순수 계산 타임

The experiment in two parts.

For simplicity, you may use integers. For each case, make sure the same

original data is input to all four algorithms

1. A small array size, n = 32, to verify correctness
   Run each algorithm on two sets of data:
   (1) Sorted, (2) Randomly generated.
2. Large array sizes (n=2^{10}=1024) for randomly generate data to determine time complexity

Tabulate the performance results, listing both the number of comparisons and

the measured clock times.

File attachments

● Programming code (source)

● Input file

- Output file produced by your program

- Documentation

- Lessons learned from programming assignment.

Due to 4th Nov.