Compare three sorting algorithms: Insertion Sort, Shell Sort (shell’s sequence),

and Quick Sort (median-of-three version). Run three sorting algorithms on each input file three times and record the execution time.

Calculate the average of three runs as the execution time of this algorithm on one input file.

Generate two sets of input files. The first set contains random integers of size N = 50,000 ,

100,000 , 200,000 , 400,000 , and 800,000. The second set contains “almost sorted” integers of N =

50000, 100000, 200000, 400000, and 800000. We define “almost sorted” as 10% of integers are

out of order.

**Hint:** start with a sorted input file, then covert it to an “almost sorted” input file

by creating a certain percentage of inversions.

**Note:** to get accurate measurement of execution time, do NOT combine any test runs nor run

multiple input data in one execution. Otherwise, JVM garbage collection might affect the

performance.