Lab2: Appreciating Best, Average and Worst Case Complexities

September 27, 2021

Problem: Implement the following 3 algorithms(modify bubble sort to get $\theta(n)$ best case complexity):

1. Bubble Sort
2. Insertion Sort
3. Selection Sort

Generate input lists of 4 types in the range 0 to 1000.

1. Random integers of sizes 10^k (k = 4,5,6,7)
2. Sorted lists obtained in array 1
3. Almost sorted lists obtained from array 1. (This can be obtained by swapping 1% pairs of the sorted array)
4. Lists sorted in descending order.

Submission Procedure

- Write your observations/ analysis of this experiment.
- Plot the time taken by the 3 algorithms on each of the type of the input lists.

Submit your code for the algorithms and for generating data (and not data) + the 4 plots and your analysis as one zip or tar file (No rar please).