Home Work 3

Any coding platform and programming language is allowed

0: Code working insertion sort, quick sort, merge sort and heapsort algorithms as **methods**

0: Make sure that your sorting methods are working properly and **correctly**

0: All of the homeworks will be checked at your **own computer**. So do not try to cheat

0: Homeworks are scheduled to be evaluated at 16 April 2018 in the next lesson, 16.04.2018

0: Calculate method run times as miliseconds

Main method

1: Generate an array or a list that contains 100,000 random integers

2: This first generated list will be the seed list

3: If your method is doing in-place (the given array/list itself is sorted) sorting, make sure that you are feeding it with an exact copy temporary list of seed so that the seed list is not sorted/modified

4: Sort seed list with insertion sort, quick sort, merge sort and heapsort methods and print sorting times to the screen. Before sorting and after sorting write to a text file the array/list you have provided to the sorting methods so we can see whether you have provided the original seed list or sorted list etc. Make sure that you have provided temporary array/list to methods that does in-place sorting

5: Sort the seed list itself

6: Now change the seed list[99999]'th element (last element in the list) to a new random integer

7: The aim of step 6 is emulating how would behave the sorting algorithms on a dynamic list. It can be considered as a new element added to our list and we want to keep our list as sorted

8: Now sort the seed list again by using exact copy temporary arrays/lists like in step 4 with each one of the algorithms, print run times to the screen and try to understand running times differences

9: Sort the seed list itself again and **reverse** it

10: Run each method again like in step 4, print run times and see how they behave on a **reverse** sorted list

11: Sort the seed list itself again

12: Run each method again on the sorted seed like step 4, print run times and see how each one behaves on a sorted list

Additional Note

In addition, you need to RAR (e.g. Winrar) or ZIP (e.g. Winzip) your homework code and email to me. My email is furkangozukara@gmail.com. Make sure that you have included your Name, Student number and the number of the HomeWork such as HomeWork 3 to the email.

For any questions, come and ask me without any hesitation. My room is A015