Department of Computer Science

COS212: Practical 10 (Friday)

Release: Thursday 18 May 2017
Deadline: Friday 19 May 2017, 18:00

Instructions

Complete the tasks below. Certain classes have been provided for you in the files sub-folder of the practical download. Modify the given main class to test the functionality of your work. Remember to test corner cases. Upload only the given source files with your changes in a zip archive before the deadline. Please comment your name and student number in at the top of each file.

Merge Sort - page 526

The problem with Quicksort is that its complexity in the worst case is $O(n^2)$ because it is difficult to control the partitioning process. The key process in Mergesort is merging sorted halves of an array into one sorted array. However, these halves have to be sorted first, which is accomplished by merging the already sorted halves of these halves. You have been provided with the following file: `Mergesort.java` a partially implemented file.

The following methods have been provided to you in the `Mergesort.java` file, which you are not to modify:

`private void collectOutput(T[] data)`
    That collects the output at each merge of sub-arrays.

`public void toString()`
    Which provides you the output.

Task [50]

Implement the following operations:

`public void mergesort(T[] data)`
    The method takes in an array and sorts it.

`public void merge(T[] data, int first, int last)`
    Merges two subarrays into one.

Submission

Submit your source files on the CS Website. Place all the files in a zip archive named as uXXXXXXXX.zip where XXXXXXXX is your student number. Please make use of the submission slot that corresponds to your practical session (Practical 10 - Friday). Submit your work before the deadline. No late submissions will be accepted.