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Homework Assignment 4

Due date: October 6, 11:55PM

Problem 1

Apply quick sort to the following integer array. The array should be sorted from smallest to largest. The pivot index of the pivot is selected to be `(first+last)/2` where first and last are the indexes of the `first` and `last` elements in the considered partition (do not use the median of three pivot selection that we discussed in class). The pivot should be moved to the last position before the partitioning step. After the partition it should be moved back to its proper position. You should show the following steps:

- content of the array after pivot is moved to the last position,
- content of the array after completing partitioning and moving the pivot to its proper position (indicate the position of the pivot in bold and/or in color).

index	0	1	2	3	4	5	6	7	8	9	10
value	12	13	27	65	43	59	45	67	7	5	55

Problem 2

Apply merge sort to the following integer array. The array should be sorted from smallest to largest. Show all the steps of splitting the array and then merging the pieces.

index	0	1	2	3	4	5	6	7	8	9	10
value	2	76	27	62	43	59	45	87	13	5	99

Problem 3

Write an implementation of the generic method that given two sorted arrays, merges them into a single array and returns the array containing all elements in sorted order. The original arrays passed as a parameter should not be modified.

How and what to submit

You can (but do not have to) use the template provided at

https://docs.google.com/a/nyu.edu/document/d/1rltJksrk8VM2BGhvFTuzox8f-UNEvKmp9GsvkjOHe7w/edit?usp=sharing

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to complete your solution.

The completed solutions should be submitted as a single PDF document to NYU Classes.

Warning: Make sure you submit a PDF document. We will ignore any files that are not PDF (that includes text files, Word documents, Google docs, RTF files, etc.).