BPDC, Dubai – II Semester, 2020-2021

Course No: CS F211 **LAB EXERCISE 7** **Course Title: DSA**

Date: March 22 2021

1. Write a program (in C, C++, or java) that would implement two functions quick sort and merge sort and enumerate their running times for those test cases in the file *SearchTestcase.txt*. Your program should generate two files *QuickSortTime.txt MergeSortTime.txt* further, plot and compare the same.

For each of those test cases, you could dynamically allocate memory for the array variable depending on test case size. For further details, refer Lab_01. There are 18 test cases in the file. Each line corresponds to a test case where the first entry is the number of values in the list to sort and the elements follows.

Additionally, you are also provided with a *testCaseSize.txt*. This text file contains 18 entries, where the i^{th} entry is the size of the array corresponding to the i^{th} test case.

2. Write a program to implement merge sort using linked lists (you should use the same set of input test cases). We have learned a procedure to merge two sorted lists into one (Tutorial 6). Your function mergeSort() should take a head pointer of a linked list as input, call a function split(), that would split the list into two and would return a head pointer to the second list, recursively sort both and then merge.