ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)

ORGANISATION OF ISLAMIC COOPERATION (OIC)

Department of Computer Science and Engineering (CSE)

CSE 4404: Algorithms Lab
Lab 0

Objectives

- Comparing the growth of various sorting algorithms
- Solve problems involving sorting

Tasks

1. Implement Bubble Sort, Selection Sort and Merge Sort. A power point file is provided containing the algorithm/code for those sorting.

2. Use the "random_numbers.txt" file that contains 10 million random numbers. Apply your implemented sorting algorithm along with C++ library sorting to compare the performance by measuring the time needed to execute the program.

    - A program file called "sort.cpp" is provided containing a sample code to read numbers from a file and measure the time to sort the numbers using the library sorting. You can use that file as your template code.
    - Run multiple tests to sort an array for the following array size: (50000, 100000, 500000, 750000, 1000000, 5000000) by reading the numbers from the provided text file.
    - An excel file (plot.xlsx) is provided with fake data. Fill up the table of the excel file using data generated by your code to compare the growth of various sorting algorithms.

3. Open a free account at vjudge.net (if you don't have one) and solve the problems given in the following contest: (The contest will remain open until next week lab)

    - Contest link: **https://vjudge.net/contest/603540**
    - Password: 1a2024