LAB SESSION 6

# Sorting algorithms

**1. OBJECTIVE**

The objective of Lab 6 is to help students to practice on sorting algorithms studied during this course.

**2. INTRODUCTION**

In this study, students try to implement several sorting algorithms and then evaluate each algorithm through a given set of dataset. Each dataset contains initially a list of data in an arbitrary order. After calling some sorting algorithm on a dataset, the practical execution time is stored in order to make analysis to compare the performance of all implemented sorting algorithms.

**Required Exercises**

Implement the following sort algorithms to sort an array of integers:

- Bubble sort

- Selection sort

- Insertion sort

- Heap sort

- Merge sort

- Quick sort

Implement the **Quick and Merge Sorting** algorithm to sort a linked list of integers.

**Advanced Exercises**

Implement the **Shell Sorting** algorithm to sort an array of integers.

Re-implement BST and AVL tree in order to sort a list of data (as described above).

Implement 3-way tree and 5-way tree in order to sort a list of data (as described above).