Lab 14 Searching and Sorting

Introduction to Computer Science I

# Objectives:

After performing this lab, the students should be able to

* implement in C++ linear search and binary search and compare between the two
* implement in C++ bubble sort, insertion sort, and selection sort, and compare among them

# Names of Lab Group Members:

## Activity

Provide your C++ source code and screenshots of your program outputs.

##### Part A

Write a program that performs linear search and binary search on a list of integers. Display the search result as well as the number of comparisons used for the following inputs:

list: 1, 6, 7, 10, 14, 20, 21, 30, 50, 80

key 1: 10

key 2: 80

key 3: 0

Which algorithm is more efficient?

##### Part B

Write a program that performs bubble sort, insertion sort, and selection sort. Display the total number of comparisons and swaps done by each sort method for the following inputs:

list 1: 1 7 8 10 4 20 21 23 33 50

list 2: 10 9 8 7 6 5 4 3 2 1

list 3: 89 35 8 22 10 65 78 12 5 70

What are the advantage(s) and disadvantage(s) of each algorithm?