Department of Electrical and Software Engineering
Schulich School of Engineering

ENSF 694 - Principles of Software Development II
Summer 2023

Lab 2 – June 28, 2023
Topic: Searching Algorithm

- All codes must be complete and compile without any errors.
- The codes should work for not only the given sample inputs but also any inputs of the same data types.

Q1. (10 + 10 = 20 marks)
Implement the linear search algorithm and the interpolation algorithm (either iterative or recursive) for an integer array and search for a key in the array. Prompt the user for all inputs.

Sample Input:
Enter the number of elements in the array: 10
Enter the elements in the array:
23
12
11
34
45
65
33
10
11
19
Enter the search key: 11

Sample Output:
Using Linear Search:
Search key FOUND at index 2.

Using Interpolation Search:
Search key FOUND at index 2.

* Show “Search key NOT FOUND” if nothing matches the search key.

Q2. (5 marks)
Compare their running times and show them. Which one performed better and why?

Q3 (5 marks)
Try to improve the running time of the linear search by at least 20% and explain your logic.