

## **Lab Report**

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**section: 4CF**

**Lab no:01**

**Name: Linear Search.**

### **Introduction:**

In this lab, we will explore the concept of Linear Search, a simple method used to find a specific value in a list or array. Linear search works by checking each element one by one from the beginning of the list until the desired value (called the target) is found or the end of the list is reached. If the value is found, the program returns its position (index); if not, it indicates that the value is not present. This method is easy to understand and does not require the list to be sorted, making it a good starting point for learning about search algorithms. In this lab, you will write a basic program that performs linear search, tests it with different inputs, and understand how it works in real-life programming situations.

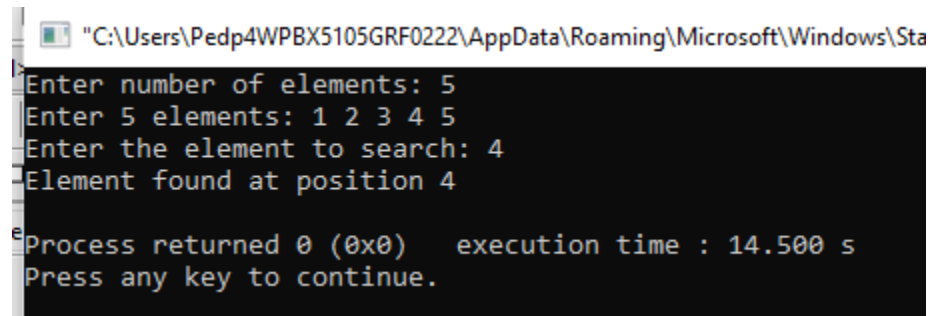
### **Objective:**

To implement and understand the linear search algorithm for finding an element in a list or array, and to analyze its working principle, efficiency, and limitations.

### **Code:**

<https://github.com/ADRITA-NANDI/Linear-Search-algorithm.git>

## Output:

A screenshot of a Windows command prompt window. The title bar shows the file path: "C:\Users\Pedp4WPBX5105GRF0222\AppData\Roaming\Microsoft\Windows\Sta". The command prompt displays the following text:

```
Enter number of elements: 5
Enter 5 elements: 1 2 3 4 5
Enter the element to search: 4
Element found at position 4

Process returned 0 (0x0)   execution time : 14.500 s
Press any key to continue.
```

## Discussion:

In this experiment, we implemented the linear search algorithm to find an element in an array. The program checks each element one by one until the desired element is found or the list ends. The result shows that linear search is simple and easy to understand, but it takes more time if the number of elements is large because every element may need to be checked. It works well for small lists or unsorted data but is not efficient for big datasets.