**Linear Search**

Linear search is a sequential searching algorithm where we start from one end and check every element of the list until the desired element is found.

**Linear Search Pseudocode:**

procedure linear\_search (list, value)

for each item in the list

if match item == value

return the item's location

end if

end for

end procedure

**Complexities:** Time Complexity: Best – O(1), Average – O(n/2), Worst – O(n)

Space Complexity: O(1)

**Applications:** For searching operations in smaller arrays (<100 items)

**Source Code:**

using System;

namespace LinearSearch

{

class Program

{

static void Main(String[] args)

{

Input();

}

static void Input()

{

Console.Write("Enter Number of Items: ");

int noOfItems = Convert.ToInt32(Console.ReadLine());

int[] itemsList = new int[noOfItems];

Console.Write("Enter Items: ");

for (int i = 0; i < noOfItems; i++)

{

itemsList[i] = Convert.ToInt32(Console.ReadLine());

}

Console.Write("Enter Search Item: ");

int searchItem = Convert.ToInt32(Console.ReadLine());

int result = LinearSearch(itemsList, searchItem);

if (result != -1)

{

Console.WriteLine($"Item is found in {result+1} location");

}

else

{

Console.WriteLine("Item does not found");

}

}

static int LinearSearch(int[] itemsList, int searchItem)

{

for (int i = 0; i < itemsList.Length; i++)

{

if (itemsList[i] == searchItem)

{

return i;

}

}

return -1;

}

}

}