# EXPERIMENT – 3

# Aim: To find a number in a sorted array of the numbers using linear search.

## Pseudo code

Function linearsearch(arr[], n, key)

for i = 0 to n - 1

if arr[i] == key

return i

return -1

Input n

Input arr[n]

Input key

Result = linearsearch(arr, n, key)

If Result != -1

Print "Element found at index:", Result

Else

Print "Element not found!"

End If

## Source code:

#include<iostream>

using namespace std;

int linearsearch(int arr[],int n,int key){    //    FUNCTION

    for (int i=0;i<n;i++){                    //   FOR LINEAR

        if( arr[i]==key){                     //  SEARCH USING

            return i;                         //      USING

        }                                     //      ARRAYS

    }

    return -1;

}

int main(){

    int n;

    cin>>n;

    int arr[n];

    for (int i=0;i<n;i++){

        cin>>arr[i];

    }

   int key;

   cin>>key;

   int result = linearsearch(arr,n,key);

   if(result!=-1){

    cout<<"Element found at index:"<<result<<endl;

   }

   else{

    cout<<"Element not found!"<<endl;

   }

}

## Output:

**5**

**10 20 30 40 50**

**40**

**Element found at index:3**

## Learning from experiment

* Linear Search Implementation: Demonstrates linear search algorithm.
* Element Retrieval: Retrieves element index or indicates absence.