



Course Name: DAA Lab

Course Code: 21ITH-311/21CSH-311

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**Semester:**5

**Date of Performance:**22-08-2023

**Subject Name:** DAA

**Subject Code:** 21CSH-311

### **Experiment 1.3**

**Aim:** Evaluate the complexity of the developed program to find frequency of elements in a given array.

#### **Procedure/Algorithm:**

Step 1: Start

Step 2: Declare an integer array arr with some elements.

Step 3: Prompt the user to enter an element and store it in the variable n.

Step 4: Calculate the size of the array using `sizeof(arr)/sizeof(arr[0])` and store it in the variable size.

Step 5: Initialize an integer variable freq to 0. This variable will be used to keep track of the frequency of the element n in the array.

Step 6: Use a for loop to iterate through the elements of the array from index 0 to size-1.

a. Inside the loop:

- Check if the current element `arr[i]` is equal to the element n. -  
If they are equal, increment the freq variable by 1.

Step 7: After the loop, check the value of freq.

-If freq is 0, print a message indicating that the element n is not present in the array. -  
Otherwise, print the frequency of the element n.

Step 9: End



### Sample Code:

```
#include<iostream>
using namespace std;

int main(){

    int arr[]={3,4,1,6,7,1,6,3,1};
int n;
    cout<<"Enter the element: ";
    cin>>n;

    cout<<endl;

    int size=sizeof(arr)/sizeof(arr[0]);

    int freq=0;

    for(int i=0;i<size;i++){

        if(arr[i]==n){
            freq=freq+1;
        }

    }

    if(freq==0){
        cout<<"The element "<<n<<" is not present in array";
    }

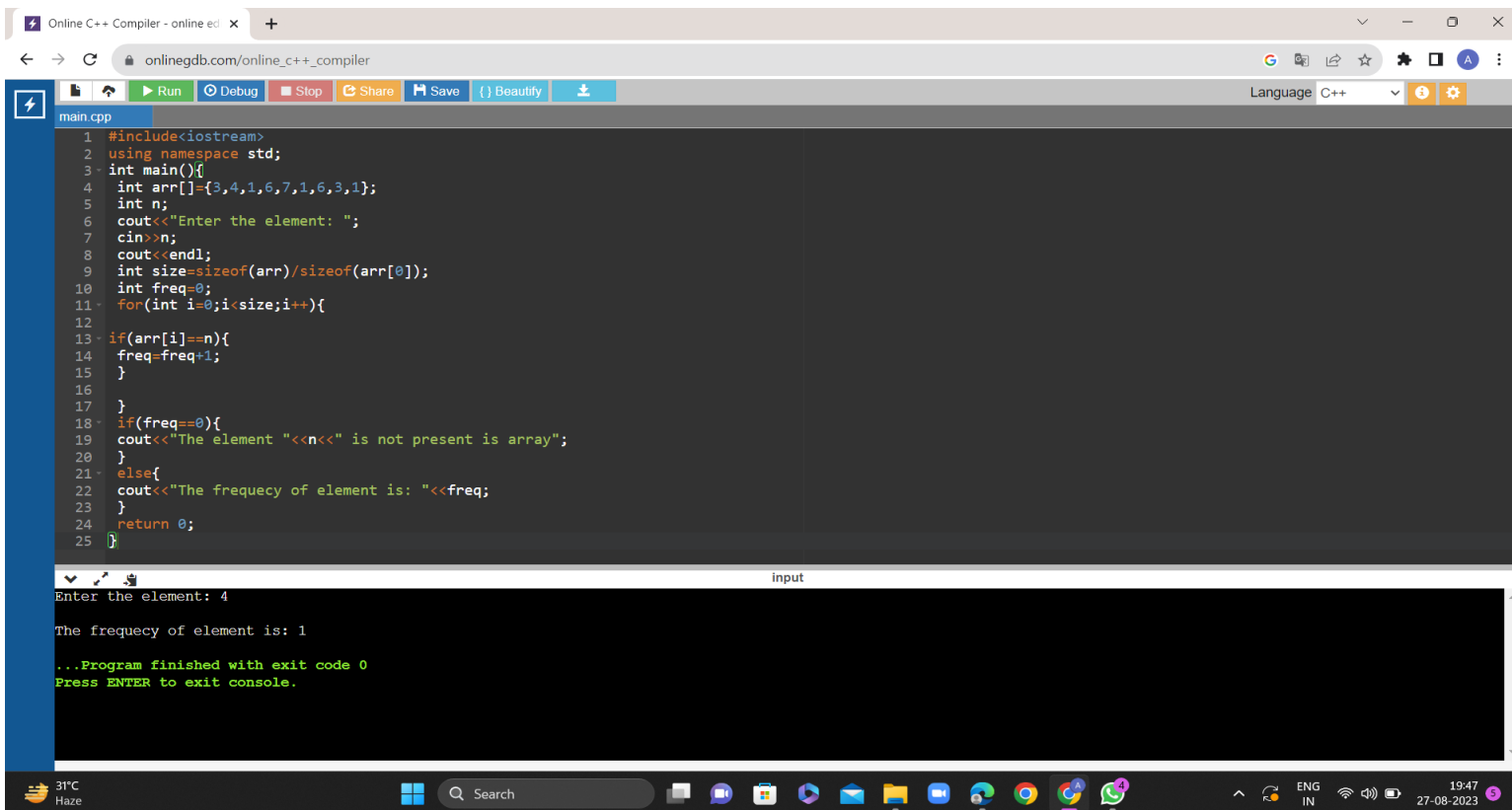
    else{        cout<<"The frequency of element is:
"<<freq;
    }

    return 0; }
```

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## Observations/Outcome:



The screenshot displays an online C++ compiler interface. The code in the editor is as follows:

```
1 #include<iostream>
2 using namespace std;
3 int main(){
4     int arr[]={3,4,1,6,7,1,6,3,1};
5     int n;
6     cout<<"Enter the element: ";
7     cin>>n;
8     cout<<endl;
9     int size=sizeof(arr)/sizeof(arr[0]);
10    int freq=0;
11    for(int i=0;i<size;i++){
12
13        if(arr[i]==n){
14            freq=freq+1;
15        }
16    }
17    if(freq==0){
18        cout<<"The element "<<n<<" is not present in array";
19    }
20    else{
21        cout<<"The frequency of element is: "<<freq;
22    }
23    return 0;
24 }
```

The output window shows the following execution results:

```
Enter the element: 4
The frequency of element is: 1
...Program finished with exit code 0
Press ENTER to exit console.
```

## Time Complexity:

Time complexity is  $O(n)$