

**Ex.no:01**

**Searching algorithm (Linear & Binary search)**  
**using Array**

**Date:02.07.24**

**Aim:**

**Program:**

- 1.)C++ Program to find the second minimum element and second maximum element in an array by Linear search
- 2.)C++ Program to count the number of unique elements in an array of n elements.
- 3.) C++ Program to search the number of occurrences of a given element in an array.
- 4.) Given an array arr[] of length N, the task is to find the length of the longest subarray which consists of consecutive numbers in increasing order from the array.

**Algorithm:**



**Code:****1.)**

```
#include<iostream>
using namespace std;
int main()
{
    int a[10],i,j,t=0,b[10];
    cout<<"Enter input:";
    for(i=0;i<10;i++)
    {cin>>a[i];}
    for(j=0;j<10;j++)
    {for(i=j+1;i<10;i++){
        if(a[j]>a[i]){
            t=a[j];
            a[j]=a[i];
            a[i]=t;}}}
    for(i=0;i<10;i++)
    {cout<<a[i]<<" ";}
    cout<<"Max"<<a[8];
    cout<<"Min"<<a[1];
    return 0;}
```

**Output:**

```
Enter input:1 2 3 4 5 6 7 8 9 -1
Max:8
Min:3
Process returned 0 (0x0)    execution time : 5.266 s
Press any key to continue.
```

**2.)**

```
#include<iostream>
using namespace std;
int main()
{
    int a[5],i,j,b,c=0;
    cout<<"enter 5 elements";
    for(i=0;i<5;i++)
        {cin>>a[i];}
    for(i=0;i<5;i++)
        {b=0;
          for(j=0;j<5;j++)
            { if(a[i]==a[j])
              {b++;}}
          if(b==1)
            {c++;}}
    cout<<"no of unique elements"<<c;
    return 0;}
```

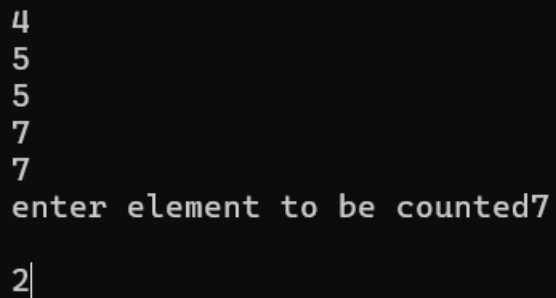
**Output:**

```
enter 5 elements5
5
3
8
9
no of unique elements3
Process returned 0 (0x0)   execution time : 7.413 s
Press any key to continue.
```

**3.)**

```
#include<iostream>
using namespace std;
int main()
{
    int a[5],i,j,b=0,c;
    for(i=0;i<5;i++)
    {cin>>a[i];
    }
    cout<<"enter element to be counted";
    cin>>c;
    for(i=0;i<5;i++)
    {
        if(a[i]==c)
            b++;
    }
    cout<<endl<<b;
    getch();}
```

**Output:**

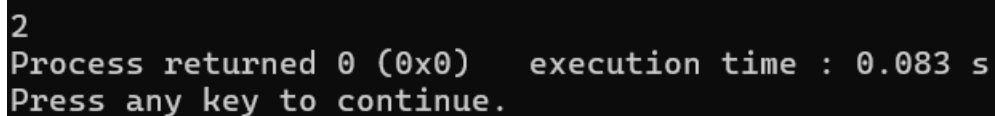
A screenshot of a terminal window showing the output of the C++ program. The input sequence is 4, 5, 5, 7, 7, followed by the prompt 'enter element to be counted' and the input 2. The output is 0.

```
4
5
5
7
7
enter element to be counted
2
0
```

**4.)**

```
#include <bits/stdc++.h>
using namespace std;
int maxsubarrint arr[],int n)
{
    int maxi =0;
    for (int i=0;i<n-1;i++){
        int ct =1,j;
        for (j=i;j<n;j++){
            if (arr[j+1]==arr[j]+1){
                ct++;}
            else{break;}}
        maxi = max(maxi, ct);
        i = j;}
    return maxi;}
int main()
{
    int n = 11;
    int arr[] = { 1, 3, 4, 7, 8, 4,
                2, 9, 5, 6, 12 };
    cout << maxsubarrarr, n);
    return 0;}
```

**Output:**

A screenshot of a terminal window with a black background and white text. The output shows the number '2' on the first line, followed by 'Process returned 0 (0x0) execution time : 0.083 s' on the second line, and 'Press any key to continue.' on the third line.

```
2
Process returned 0 (0x0) execution time : 0.083 s
Press any key to continue.
```

**Result:**

The above programs are executed successfully.