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;}
```

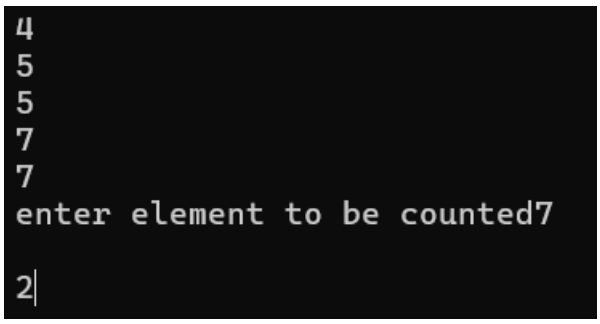
Output:

```
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:



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:

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

Result:

The above programs are executed successfully.