



CS-114 - Fundamentals of Programing

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ME-15/A

LAB MANUAL 8 (HOME TASKS)

QUESTIONS

Q-No # 1

1. Take an array and find the most repeated element in that array.

Code

```
#include<iostream>
using namespace std;
int main()
{
    int n;
    cout << "Input the number of elements in the array: ";
    cin >> n;

    int array[n]={};
    cout << "Input the elements of the array one by one:" << endl;
    for(int i = 0; i < n; i++) {
        cin >> array[i];
    }

    int max_occurrences = 0, max_value = 0;

    for(int i = 0; i < n; i++) {
        int rep = 0;
        for(int j = 0; j < n; j++) {
            if(array[j] == array[i]) {
                rep++;
            }
        }
        if(rep > max_occurrences) {
            max_occurrences = rep;
            max_value = array[i];
        }
    }

    cout << "The element " << max_value << " is the most repeated (" << max_occurrences << " times)" << endl;

    int max_occurrences2 = 0, max_value2 = 0;

    for(int i = 0; i < n; i++) {
        int rep2 = 0;
        for(int j = 0; j < n; j++) {
            if(array[j] == array[i]) {
                rep2++;
            }
        }
        if(rep2 > max_occurrences2 && rep2 == max_occurrences && array[i] != max_value) {
            max_occurrences2 = rep2;
            max_value2 = array[i];
        }
    }

    if(max_value2 != 0 && max_occurrences2 != 0) {
        cout << "The element " << max_value2 << " is also the most repeated (" << max_occurrences2 << " times)" << endl;
    }

    return 0;
}
```

Code (copy)

```
#include<iostream>

using namespace std;

int main()

{

    int n;

    cout << "Input the number of elements in the array: ";

    cin >> n;
```

```

int array[n]={};

cout << "Input the elements of the array one by one:" << endl;

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

    cin >> array[i];

}

int max_occurrences = 0, max_value = 0;

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

    int rep = 0;

    for(int j = 0; j < n; j++) {

        if(array[j] == array[i]) {

            rep++;

        }

    }

    if(rep > max_occurrences) {

        max_occurrences = rep;

        max_value = array[i];

    }

}

cout << "The element " << max_value << " is the most repeated (" << max_occurrences << " times)" << endl;

int max_occurrences2 = 0, max_value2 = 0;

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

    int rep2 = 0;

    for(int j = 0; j < n; j++) {

        if(array[j] == array[i]) {

            rep2++;

        }

    }

    if(rep2 > max_occurrences2 && rep2 == max_occurrences && array[i] != max_value) {

        max_occurrences2 = rep2;

        max_value2 = array[i];

    }

}

if(max_value2 != 0 && max_occurrences2 != 0) {

    cout << "The element " << max_value2 << " is also the most repeated (" << max_occurrences2 << " times)" << endl;

}

return 0; }

```

Execution (Example)

```
Input the number of elements in the array: 5
Input the elements of the array one by one:
5
3
5
3
7
The element 5 is the most repeated (2 times)
The element 3 is also the most repeated (2 times)

-----
Process exited after 4.016 seconds with return value 0
Press any key to continue . . . |
```

```
Input the number of elements in the array: 10
Input the elements of the array one by one:
2
6
3
8
99
3
99
3
6
7
The element 3 is the most repeated (3 times)

-----
Process exited after 7.611 seconds with return
Press any key to continue . . . |
```

Q-No # 2

2. Let's say an array is $a[8] = \{13, 15, 17, 9, 99, 77, 65, 43\}$. Find largest and smallest element.

Code

```
#include<iostream>
using namespace std;
int main()
{
    int n;
    int array[n]={};
    cout<<"Input the no of elements in the array : ";
    cin>>n;
    cout<<"Input each element of the array one by one "<<endl;
    for(int i=0; i<n; i++)
    {
        cin>>array[i];
    }

    int minvalue=INT_MAX, maxvalue=INT_MIN;

    int minvalue=INT_MAX, maxvalue=INT_MIN;

    for(int i=0; i<n; i++)
    {
        if(array[i]>maxvalue){
            maxvalue = array[i];
        }

        if(array[i]<minvalue){
            minvalue = array[i];
        }
    }
    cout<<"The largest value of the array is : "<<maxvalue<<endl;
    cout<<"The smallest value of the array is : "<<minvalue;

    return 0;
}
```

Code (copy)

```

#include<iostream>

using namespace std;

int main()
{
    int n;

    int array[n]={};

    cout<<"Input the no of elements in the array : ";

    cin>>n;

    cout<<"Input each element of the array one by one "<<endl;

    for(int i=0; i<n; i++)
    {
        cin>>array[i];
    }

    int minvalue=INT_MAX, maxvalue=INT_MIN;

    for(int i=0; i<n; i++)
    {
        if(array[i]>maxvalue){
            maxvalue = array[i];
        }

        if(array[i]<minvalue){
            minvalue = array[i];
        }
    }

    cout<<"The largest value of the array is : "<<maxvalue<<endl;

    cout<<"The smallest value of the array is : "<<minvalue;

    return 0;}

```

Execution (Example)

```

Input the no of elements in the array :
7
Input each element of the array one by one
6
8
9
2
4
6
7
The largest value of the array is : 9
The smallest value of the array is : 2
-----
Process exited after 8.722 seconds with return value 0
Press any key to continue . . . |

```

```

Input the no of elements in the array : 5
Input each element of the array one by one
3
6
8
-44
500
The largest value of the array is : 500
The smallest value of the array is : -44
-----
Process exited after 7.502 seconds with return value 0
Press any key to continue . . . |

```

Q-No # 3

3. Develop a program that takes 5 array elements from user. Swap position [2] element with position [4] element. (Hint: Use the same method of swapping values we used for variables using a third variable temp).

Code

```

#include<iostream>
using namespace std;
int main()
{
    int array[5]={};
    cout<<"Input the elements of the array : "<<endl;
    for(int i=0; i<5; i++)
    {
        cin>>array[i];
    }

    int temp=array[2];
    array[2]=array[4];
    array[4]=temp;

    cout<<"The array after switching the postions is : "<<endl;
    for(int i=0; i<5; i++)
    {
        cout<<array[i]<<" ";
    }

    return 0;
}

```

Code (copy)

```

#include<iostream>

using namespace std;

int main()

{

    int array[5]={};

    cout<<"Input the elements of the array : "<<endl;

    for(int i=0; i<5; i++)

```

```

    {

        cin>>array[i];

    }

    int temp=array[2];
    array[2]=array[4];
    array[4]=temp;

    cout<<"The array after switching the postions is : "<<endl;
    for(int i=0; i<5; i++)
    {

        cout<<array[i]<<" ";

    }

return 0;}

```

Execution (Example)

```

Input the elements of the array :
7
3
-22
700
4
The array after switching the postions is :
7 3 4 700 -22
-----
Process exited after 7.149 seconds with return value 0
Press any key to continue . . . |

```