



National University of Science and
technology
(NUST)

CS-114 - Fundamental of Programing

Home Tasks # 08

Course Instructor: Dr Jawad Khan

Lab Instructor: Muhammad Affan

Student name: Asim Imran

QALAM ID: 476434

Date: 05/12/2023

Task No1:

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

Solution:

```
#include <iostream>

using namespace std;

int main() {

    int size;

    cout << "Enter the size of the array: ";

    cin >> size;

    int arr[size];

    cout << "Enter the array elements: "<<endl;

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

        cout << "Element " << i + 1 << ": ";

        cin >> arr[i];

    }

    int mostRepeatedElement = arr[0];

    int maxFrequency = 1;

    for (int i = 0; i < size - 1; ++i) {

        int currentElement = arr[i];

        int currentFrequency = 1;

        for (int j = i + 1; j < size; ++j) {

            if (arr[j] == currentElement) {

                currentFrequency++;

            }

        }

    }

}
```

```

}
if (currentFrequency > maxFrequency) {
    maxFrequency = currentFrequency;
    mostRepeatedElement = currentElement;
}
}

cout << "The most repeated elements: " << mostRepeatedElement;

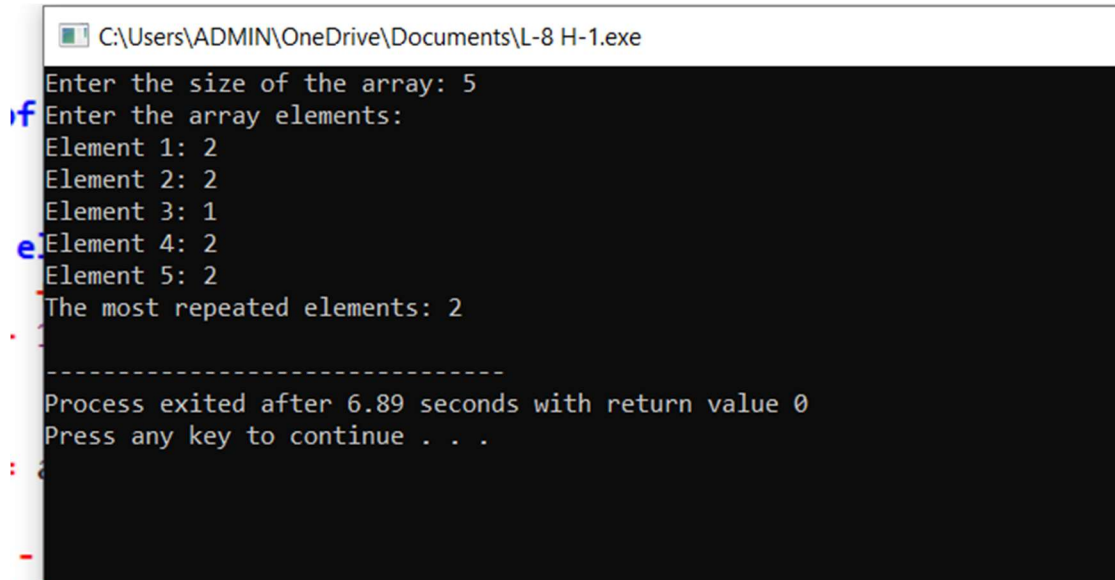
for (int i = 1; i < size; ++i) {
    int currentElement = arr[i];
    int currentFrequency = 1;
    for (int j = i + 1; j < size; ++j) {
        if (arr[j] == currentElement) {
            currentFrequency++;
        }
    }
    if (currentFrequency == maxFrequency && currentElement != mostRepeatedElement) {
        cout << ", " << currentElement;
    }
}

cout << endl;

return 0;
}

```

Output:



```
C:\Users\ADMIN\OneDrive\Documents\L-8 H-1.exe
Enter the size of the array: 5
Enter the array elements:
Element 1: 2
Element 2: 2
Element 3: 1
Element 4: 2
Element 5: 2
The most repeated elements: 2

-----
Process exited after 6.89 seconds with return value 0
Press any key to continue . . .
```

Task No2:

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

Solution:

```
#include <iostream>

using namespace std;

int main() {

    int arr[8] = {13, 15, 17, 9, 99, 77, 65, 43};

    int l = arr[0];

    int s = arr[0];

    for (int i = 1; i < 8; ++i) {

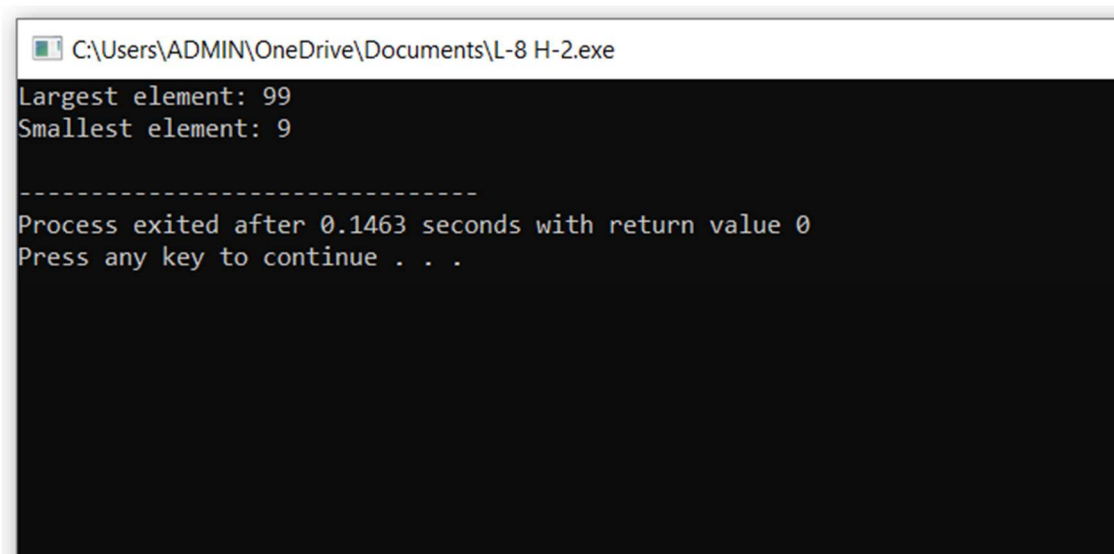
        if (arr[i] > l) {

            l = arr[i];

        } else if (arr[i] < s) {
```

```
s= arr[i];  
}  
}  
  
cout << "Largest element: " << l << endl;  
cout << "Smallest element: " << s << endl;  
  
return 0;  
}
```

Output:



```
C:\Users\ADMIN\OneDrive\Documents\L-8 H-2.exe  
Largest element: 99  
Smallest element: 9  
  
-----  
Process exited after 0.1463 seconds with return value 0  
Press any key to continue . . .
```

Task No3:

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).

Solution:

```
#include <iostream>

using namespace std;

int main() {

    int a[5];

    int temp;

    cout << "Enter 5 array elements:"<<endl;

    for (int i = 1; i <= 5; ++i) {

        cout << "Element " << i << ": ";

        cin >> a[i];

    }

    temp = a[2];

    a[2] = a[4];

    a[4] = temp;

    cout << "The new array is :"<<endl;

    for (int i = 1; i <= 5; ++i) {

        cout << "Element " << i << ": " << a[i] << endl;

    }

    return 0;

}
```

Output:

 C:\Users\ADMIN\OneDrive\Documents\L-8 H-3.exe

Enter 5 array elements:

Element 1: 25

Element 2: 14

Element 3: 26

Element 4: 1

Element 5: 3

The new array is :

Element 1: 25

Element 2: 1

Element 3: 26

Element 4: 14

Element 5: 14

Process exited after 10.16 seconds with return value 0

Press any key to continue . . .