

Computer Systems & Programming

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Home Tasks of Lab Manual 8

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Home Task# 1:

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

Code:

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

int main() {
    int arr[] = {1, 2, 3, 1, 4, 2, 1, 5, 3};
    int n = sizeof(arr) / sizeof(arr[0]);

    int maxCount = 0;
    int mostRepeated;

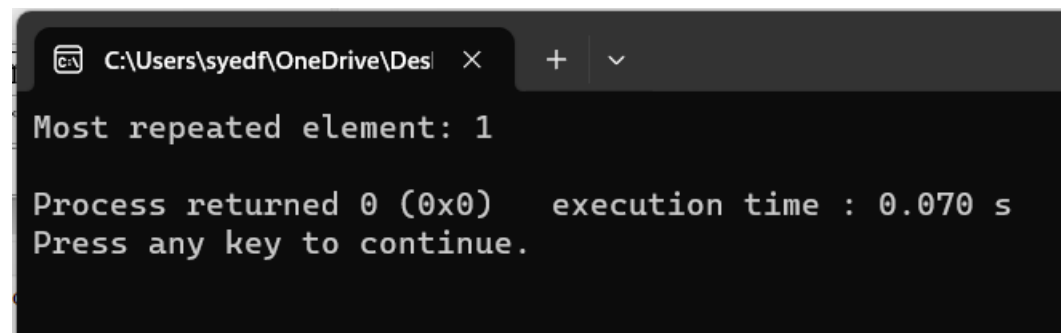
    for (int i = 0; i < n; i++) {
        int count = 0;
        for (int j = 0; j < n; j++) {
            if (arr[i] == arr[j]) {
                count++;
            }
        }

        if (count > maxCount) {
            maxCount = count;
            mostRepeated = arr[i];
        }
    }

    cout << "Most repeated element: " << mostRepeated << endl;

    return 0;
}
```

Result:

A screenshot of a Windows command prompt window. The title bar shows the file path "C:\Users\syedf\OneDrive\Desl" and standard window controls. The command prompt displays the output of the program: "Most repeated element: 1". Below this, it shows "Process returned 0 (0x0)" and "execution time : 0.070 s". At the bottom, it says "Press any key to continue.".

```
C:\Users\syedf\OneDrive\Desl >
Most repeated element: 1

Process returned 0 (0x0)   execution time : 0.070 s
Press any key to continue.
```

Home Task# 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 a[] = {13, 15, 17, 9, 99, 77, 65, 43};

    int n = sizeof(a) / sizeof(a[0]);

    // Initialize variables

    int largest = a[0];

    int smallest = a[0];

    // Loop through the array
    for (int i = 1; i < n; ++i) {

        if (a[i] > largest) {

            largest = a[i];

        }

        else if (a[i] < smallest) {

            smallest = a[i];

        }

    }

    // Print the results

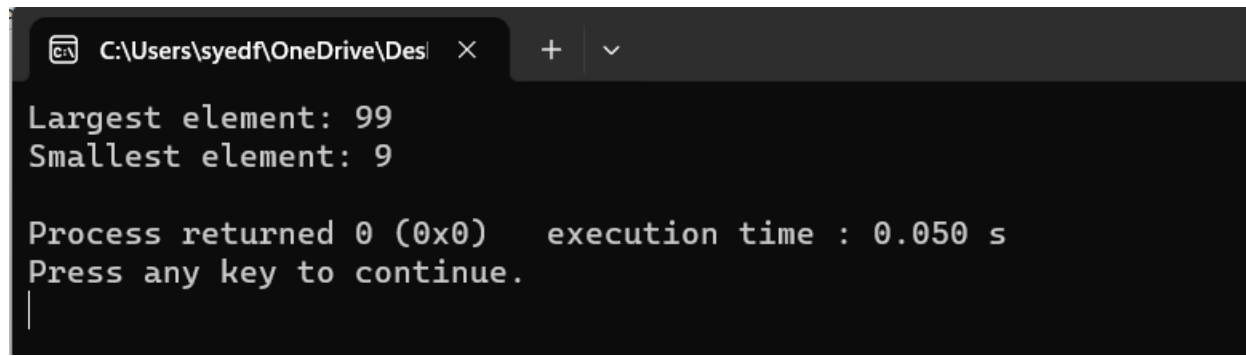
    cout << "Largest element: " << largest << endl;

    cout << "Smallest element: " << smallest << endl;

    return 0;
```

```
}
```

Result:



```
C:\Users\syedf\OneDrive\Desktop
Largest element: 99
Smallest element: 9

Process returned 0 (0x0)   execution time : 0.050 s
Press any key to continue.
```

Home Task# 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() {
    // Define an array to store 5 elements
    int arr[5];

    // Get input from the user
    cout << "Enter 5 elements for the array: ";
    for (int i = 0; i < 5; i++) {
        cin >> arr[i];
    }

    // Swap elements at positions 2 and 4
    int temp = arr[2];
    arr[2] = arr[4];
    arr[4] = temp;

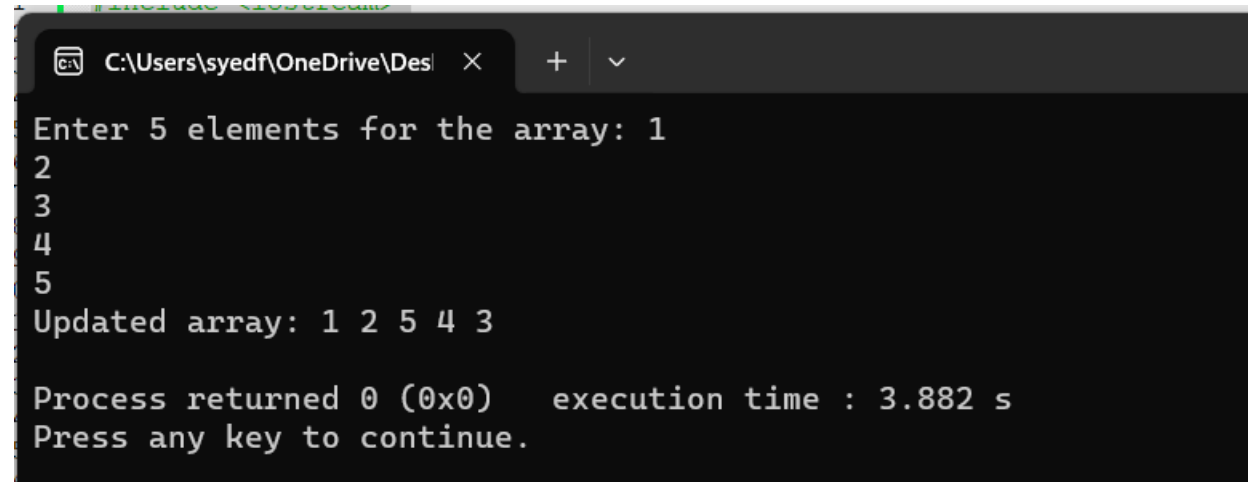
    // Print the updated array
    cout << "Updated array: ";
    for (int i = 0; i < 5; i++) {
        cout << arr[i] << " ";
    }
}
```

```
cout << std::endl;
```

```
    return 0;
```

```
}
```

Result:



```
C:\Users\syedf\OneDrive\Desktop>
Enter 5 elements for the array: 1
2
3
4
5
Updated array: 1 2 5 4 3

Process returned 0 (0x0)    execution time : 3.882 s
Press any key to continue.
```