NATIONAL UNIVERSITY OF SCIENCE & TECHNOLOGY

SCHOOL OF MECHANICAL & MANUFACTURING ENGINEERING

Fundamental of Programmings
Lab Manual 8
Home Task

CLASS:	ME-15 (Section C)
TITLE:	ASSIGNMENT 3
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1.

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

```cpp
//task#1
#include <bits/stdc++.h>
using namespace std;

int main() {
    int a[10] = {1, 4, 12, 4, 10, 4, 5, 6, 7, 10};
    int x = 0; //x is the most repeated element and we initialize it with 0
    int y = 0; //y is max most count of an element and we initialize it with 0

    // proceed through the array and count the occurrences of each element
    for (int i = 0; i < 10; i++) {
    int z = 0; //z is the current count of an element and we initialize it with 0
        for (int j = i + 1; j < 10; j++){
            if (a[i] == a[j]){
                z++;
            }
        }
        if (z > y){
            y = z;
            x = a[i];
        }
    }

    cout << "Most repeated element is: " << x << endl;
return 0;
}
```

```
C:\Users\sbc\Desktop\Untitled1.exe

Most repeated element is: 4

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Process exited after 0.03915 seconds with return value 0
Press any key to continue . . .
```

2.
Let's say an array is a[8] = {13, 15, 17, 9, 99, 77, 65, 43}. Find largest and smallest element.
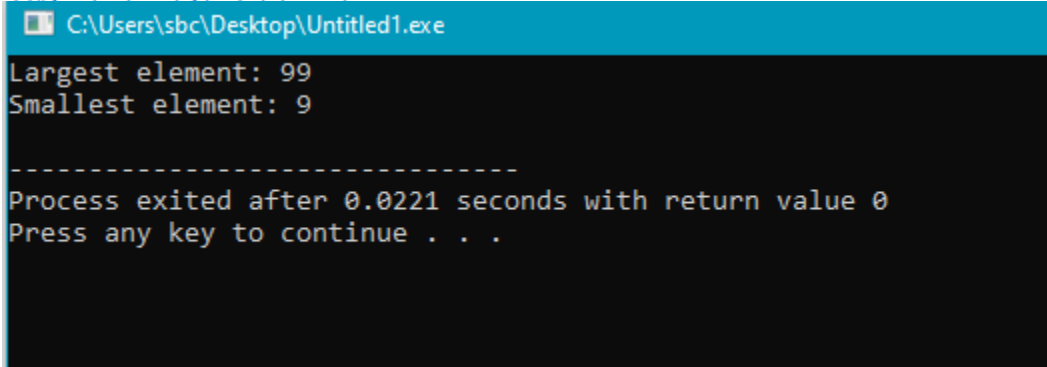
```cpp
//task#2
#include <bits/stdc++.h>
using namespace std;

int main() {
    int a[8] = {13, 15, 17, 9, 99, 77, 65, 43};
    int max = a[0]; // initialize max with the first element
    int min = a[0]; // initialize min with the first element

    for (int i = 0; i < 8; i++) {
        if (a[i] > max) {
            max = a[i]; // update max if current element is larger
        } else if (a[i] < min) {
            min = a[i]; // update min if current element is smaller
        }
    }

    cout << "Largest element: " << max << endl;
    cout << "Smallest element: " << min << endl;

    return 0;
}
```

```
C:\Users\sbc\Desktop\Untitled1.exe

Largest element: 99
Smallest element: 9

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Process exited after 0.0221 seconds with return value 0
Press any key to continue . . .
```

3.
Develop a program that takes 5 array elements from user. Swap position [2] element with position [4] element.

```cpp
//task#3
#include <bits/stdc++.h>
using namespace std;

int main() {
    int a[5]; // declare an array of 5 elements
    int temp; // declare a temporary variable

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

    for (int i=0; i<5; i++){//The algorithm starts by putting the elements of the array
    cin >> a[i];
    }

    // swap the 2nd and 4th elements
    temp = a[2];
    a[2] = a[4];
    a[4] = temp;

    cout << "Array after swapping: ";
    cout << a[0] << " " << a[1] << " " << a[2] << " " << a[3] << " " << a[4] << endl;
    //note that a[0] is the first element
    //if array is a[1,2,3,4,5] the elements a[2]=3 and element a[4]=5 will be swapped
    return 0;
}
```

```
C:\Users\sbc\Desktop\Untitled1.exe

Enter 5 elements of array:
1
2
3
4
5
Array after swapping: 1 2 5 4 3

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Process exited after 3.078 seconds with return value 0
Press any key to continue . . .
```