NUST SCHOOL OF MECHANICAL &MANUFACTURING ENGINEERING

Lab Manula:8

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SMME ♡

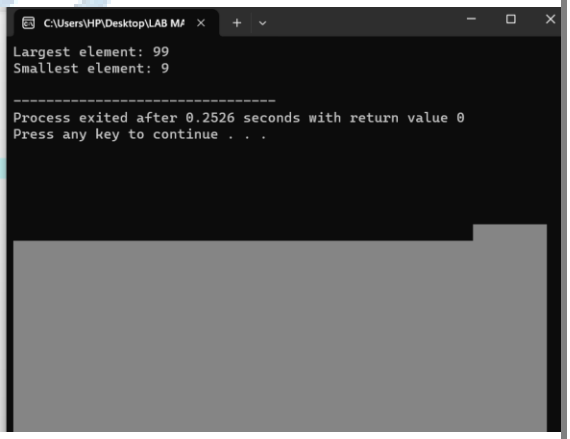
1. Take an array and find the most repeated element in that array.

```cpp
#include <iostream>
using namespace std;
int main() {
    int arr_size;
    cout << "Enter the size of the array: ";
    cin >> arr_size;
    int arr[arr_size];
    cout << "Enter the elements of the array: ";
    for (int i = 0; i < arr_size; i++) {
        cin >> arr[i];
    }
    int max_occ = 0, max_occElement = 0, count = 1;
    cout << "Length of array is: " << arr_size << endl;
    for (int i = 0; i < arr_size; i++) {
        for (int j = i + 1; j < arr_size; j++) {
            if (arr[i] == arr[j]) {
                count++;
            }
        }
        if (count > max_occ) {
            max_occ = count;
            max_occElement = arr[i];
        }
        count = 1;
    }
    cout << "Max occurring element: " << max_occElement << endl;
    return 0;
}
```

```
/tmp/Pz9OJt2BOF.o
Enter the size of the array: 8
Enter the elements of the array: 1
2
3
4
5
6
7
8
Length of array is: 8
Max occurring element: 1
```

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

```cpp
#include <iostream>
using namespace std;
int main() {
    int a[8] = {13, 15, 17, 9, 99, 77, 65, 43};
    int n = sizeof(a) / sizeof(a[0]);
//first we initialize the elements
    int Large_element = a[0];
    int small_element = a[0];
    for (int i = 1; i < n; ++i) {
        if (a[i] > Large_element) {
          Large_element = a[i];
        }
        if (a[i] < small_element) {
           small_element = a[i];
        }
    }
    cout << "Largest element: " << Large_element << endl;
    cout << "Smallest element: " << small_element << endl;
    return 0;
}
```



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).

```cpp
#include <iostream>
using namespace std;
int main() {
 int arraySize = 5;
    int arr[arraySize];
    cout << "Enter 5 array elements:" << endl;
    for (int i = 0; i < arraySize; i++) {
        cout << "Enter element at position " << i << ": ";
        cin >> arr[i];
    }
    if (arraySize >= 5) {
        int temp = arr[2];
        arr[2] = arr[4];
        arr[4] = temp;
              cout << "Array after swapping elements at positions [2] and [4]:" << endl;
        for (int i = 0; i < arraySize; i++) {
            cout << arr[i] << " ";
        }
        cout << endl;
    } else {
        cout << "Array must have at least 5 elements for swapping." << endl;
    }
    return 0;
}
```

```
/tmp/Pz9OJt2BOF.o
Enter 5 array elements:
Enter element at position 0: 8
Enter element at position 1: 6
Enter element at position 2: 9
Enter element at position 3: 2
Enter element at position 4: 3
Array after swapping elements at positions [2] and [4]:
8 6 3 2 9
```