

Lab manual 8(home tasks)

Submitted to: M. Affan

Name: Muhammad Bin Ahmad

ME-15(A)

Roll No: 480779

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

```
int n;

int most_frequent_elements[10]={};

int current_element;

int frequency,most_frequency=0;

    bool check=false;


    cout<<"Enter length of array.\n";

    cin>>n;

int numbers[n];

cout<<"Enter "<<n<<" elements into the array:\n";

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

    cin>>numbers[i];

}


int most_frequent_index=0;

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

    frequency=1;

    current_element=numbers[i];


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

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

            frequency++;

            check=true;

        }

    }

}


if (frequency>most_frequency) {
```

```

    most_frequency=frequency;
    most_frequent_elements[most_frequent_index]=current_element;
    most_frequent_index=0;
} else if(frequency==most_frequency) {
    most_frequent_index++;
    most_frequent_elements[most_frequent_index]=current_element;
}
}

if(check==false){
    cout<<"There were no repeated elements.\n";
}
else{
    cout<<"The most repeated elements are:\n";
    for (int i=0;i<=most_frequent_index;i++) {
        cout<< most_frequent_elements[i]<<" repeated "<<most_frequency<<" times."<<endl;
    }
}
}

```

```
C:\C++\Home task 8.0.exe
Enter length of array.
6
Enter 6 elements into the array:
1
2
3
4
5
6
There were no repeated elements.
-----
Process exited after 4.551 seconds with return value 0
Press any key to continue . . .
```

```
C:\C++\Home task 8.0.exe
Enter length of array.
7
Enter 7 elements into the array:
1
2
1
2
1
2
3
The most repeated elements are:
1 repeated 3 times.
2 repeated 3 times.
-----
Process exited after 5.28 seconds with return value 0
Press any key to continue . . .
```

```
C:\C++\Home task 8.0.exe
Enter length of array.
6
Enter 6 elements into the array:
1
5
3
4
2
1
The most repeated elements are:
1 repeated 2 times.

-----
Process exited after 5.262 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.

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

```
int max=0;
```

```
int min=a[0];
```

```
for (int i=0;i<8;i++){
```

```
    if (a[i]>max){
```

```
        max=a[i];
```

```
    }
```

```
    if(a[i]<min){
```

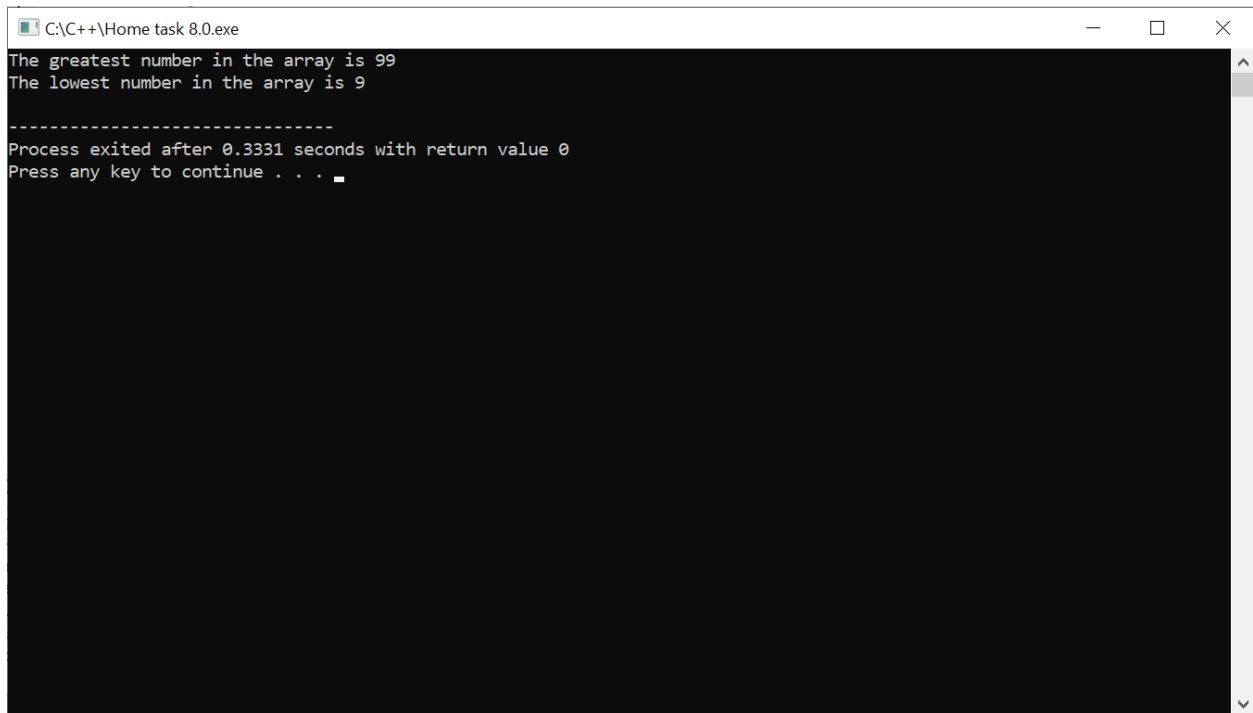
```
        min=a[i];
```

```
    }
```

```
}
```

```
cout<<"The greatest number in the array is "<<max<<endl;
```

```
cout<<"The lowest number in the array is "<<min<<endl;
```



The screenshot shows a Windows command prompt window titled "C:\C++\Home task 8.0.exe". The output of the program is displayed as follows:

```
The greatest number in the array is 99
The lowest number in the array is 9
-----
Process exited after 0.3331 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. (Hint: Use the same method of swapping values we used for variables using a third variable temp).**

```
int numbers[5];

cout<<"Enter 5 elements.\n";

for (int i=0;i<5;i++){
    cin>>numbers[i];
}

cout<<"Original array:\n";

for (int i=0;i<5;i++){
    cout<<numbers[i]<<" ";
}

cout<<endl;

int temp;

temp=numbers[4];
numbers[4]=numbers[2];
numbers[2]=temp;

cout<<"Array after swap:\n";

for (int i=0;i<5;i++){
    cout<<numbers[i]<<" ";
}
```

```
C:\C++\Home task 8.0.exe
Enter 5 elements.
8
2
7
3
5
Original array:
8 2 7 3 5
Array after swap:
8 2 5 3 7
-----
Process exited after 3.04 seconds with return value 0
Press any key to continue . . .
```