



NATIONAL UNIVERSITY OF SCIENCE & TECNOLOGY

SCHOOL OF MECHANICAL AND MANUFACTURING ENGINEERING

[FUNDAMENTALS OF PROGRAMMING –(LAB)]

MANUAL # 6

SEMESTER # 01

CLASS: - ME-15 [SEC A]

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Question No.1:

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

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
int n , i;
```

```
// __rep = most repeating number__
```

```
// __max = number of times repeated element appears__
```

```
// __elm = current element or (location)__
```

```
// __frq = current frequency__
```

```
int rep , max=1 , elm, frq;
```

```
cout<<"Enter the number of elements for array : ";
```

```
cin>>n;    // __getting input from user__
```

```
int ar[n];
```

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

```
for(int i = 1 ; i <=n ; i++)
```

```
{
```

```
cout<<endl;
```

```
cin>>ar[i];
```

```
}
```

```
// __displaying elements of array__
```

```
cout << "The array elements are: ";
```

```
for(int i = 1 ; i <= n ; i ++)
```

```
{cout<<ar[i]<<" ";
```

```
cout<<endl;
```

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

```
    elm=ar[i];
```

```
    frq=1;
```

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

```
        if(ar[j]==elm){
```

```
            frq++;
```

```
        }
```

```
    }
```

```
// __when number of time element appearing is greater than maximum numbers__
```

```
if (max<frq){
```

```
    max=frq;
```

```
    rep=elm;
```

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```
}  
}
```

```
cout<<" Most repeated elements are : "<<rep;
```

```
for(int i = 1 ; i < n ; i ++){  
    elm=ar[i];  
    frq = 1 ;  
}
```

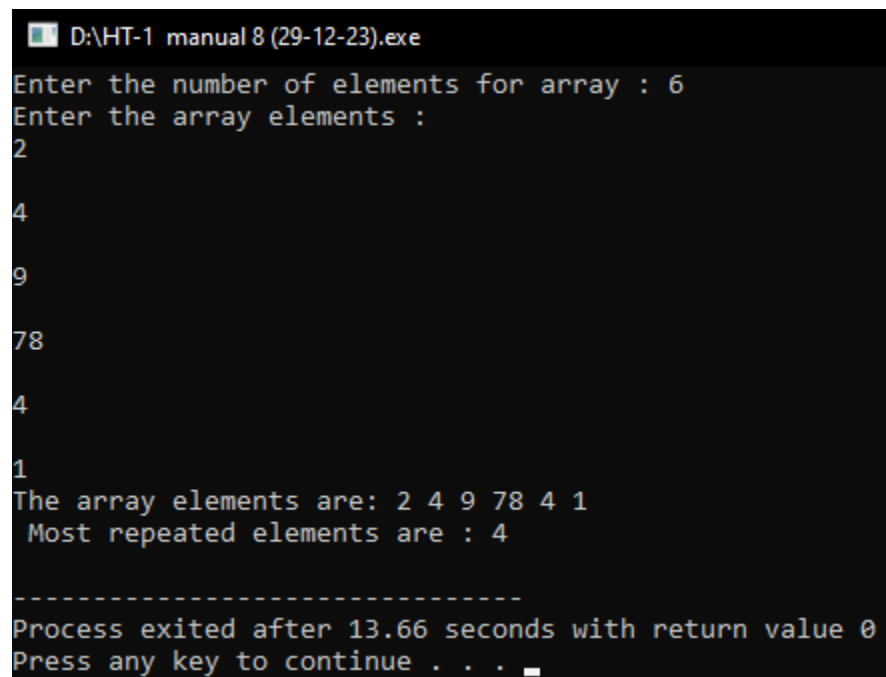
```
for(int j =i + 1 ; j < n ; j ++){  
    if(ar[j]==elm){  
        frq++;  
    }  
}
```

```
if (max = frq && elm != rep ){  
    cout<<" "<<elm;  
}
```

```
cout<<endl;
```

```
return 0; // __end program__
```

```
}
```



The screenshot shows a Windows command prompt window titled "D:\HT-1 manual 8 (29-12-23).exe". The program prompts the user to enter the number of elements for the array (6) and then the array elements (2, 4, 9, 78, 4, 1). It then displays the array elements and identifies the most repeated element as 4. The program exits after 13.66 seconds with a return value of 0.

```
D:\HT-1 manual 8 (29-12-23).exe  
Enter the number of elements for array : 6  
Enter the array elements :  
2  
4  
9  
78  
4  
1  
The array elements are: 2 4 9 78 4 1  
Most repeated elements are : 4  
-----  
Process exited after 13.66 seconds with return value 0  
Press any key to continue . . .
```

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Question No.2:

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

```
#include<iostream>

using namespace std;

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

    // __Loop to store Smallest number to arr[0] __
    for(int i = 0 ; i < 8 ; i++){

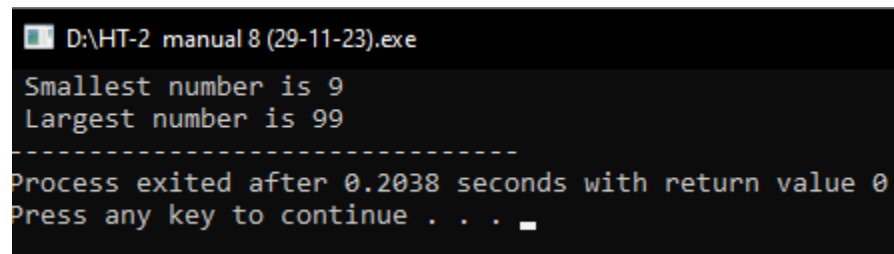
        if(a[0]>a[i])
            a[0]=a[i];
    }

    cout<<" Smallest number is "<<a[0];
    cout<<endl;

    // __Loop to store largest number to arr[0] __

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

        if(a[0]<a[i])
            a[0]=a[i];
    }
    cout<<" Largest number is "<<a[0];
    return 0; //__end program__
}
```



```
D:\HT-2 manual 8 (29-11-23).exe
Smallest number is 9
Largest number is 99
-----
Process exited after 0.2038 seconds with return value 0
Press any key to continue . . .
```

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Question No.3:

//Swap position [2] element with position [4] element

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

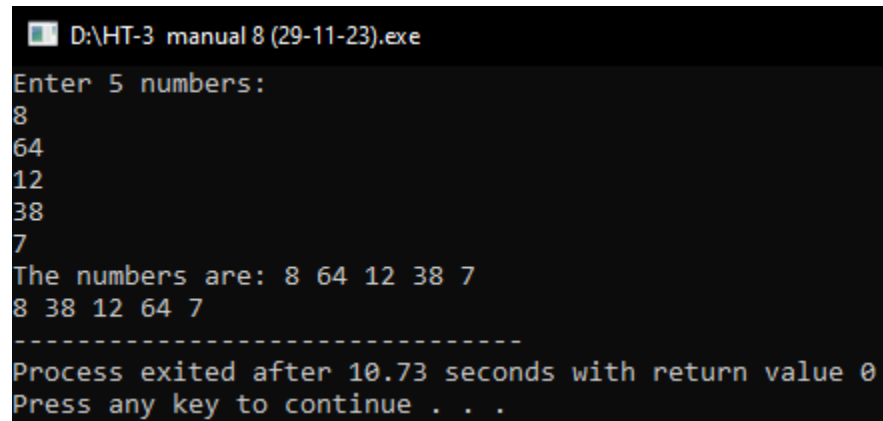
int main()
{
    int temp,i;    // __temp = temporary number__
    int ar[5];
    cout << "Enter 5 numbers: " << endl; // __store input from user to array__
    for (int i = 1; i <= 5; i++)
    { cin >> ar[i]; }
    cout << "The numbers are: ";
    // __print array elements__

    for (int n = 1; n <= 5; n++)
    { cout << ar [n] << " "; }
    cout<<endl;

    // __using a third temporary number to swap positions__
    temp=ar[2];
    ar[2]=ar[4];
    ar[4]=temp;

    for(int i=1;i<=5;i++)
        cout<<ar[i]<<" ";

    return 0; // __end program__
}
```



```
D:\HT-3 manual 8 (29-11-23).exe
Enter 5 numbers:
8
64
12
38
7
The numbers are: 8 64 12 38 7
8 38 12 64 7
-----
Process exited after 10.73 seconds with return value 0
Press any key to continue . . .
```