



CS-114 - Fundamental of Programing

Home Tasks 8

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**HOME TASK 1:**

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

Code:

```

1  #include <iostream>
2
3  using namespace std;
4  int main()
5  {
6      // HOME TASK 1
7      int l;           //length of array
8      int d;           //number of times an element appears
9      int dmax=0;      //number of times the most repeated element appears
10     int pos;         //position of the most repeated element
11     cout<<"Please enter the number of elements:"<<endl;
12     cin>>l;
13     int a[l];
14     cout<<"Please enter the elements"<<endl;
15     for(int i=0; i<l; i++){cin>>a[i];}
16     for(int i=0; i<l; i++){
17         d=0;
18         for(int j=0; j<l; j++){if(a[i]==a[j]){d+=1;}}
19         if(d==dmax){continue;}
20         if(d>dmax){dmax=d; pos=i;}
21     }
22     if(dmax==1){cout<<"All elements are present only once"; return 0;}
23     cout<<"In the given array {";
24     for(int c=0; c<l; c++){cout<<a[c]<<" ";}
25     cout<<"}, the most repeated element is "<<a[pos]<<". This element was repeated "<<dmax<<" times.";
26
27     return 0;
28 }

```

Result:

```

Please enter the number of elements:
7
Please enter the elements
8
0
4
8
2
8
4
In the given array {8 0 4 8 2 8 4 }, the most repeated element is 8. This element was repeated 3 times.
-----
Process exited after 11.52 seconds with return value 0
Press any key to continue . . .

```

```

Please enter the number of elements:
7
Please enter the elements
1
2
3
4
5
6
7
All elements are present only once
-----
Process exited after 4.601 seconds with return value 0
Press any key to continue . . .

```

**HOME TASK 2:**

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

Code:

```
1  #include <iostream>
2
3  using namespace std;
4  int main()
5  {
6      // HOME TASK 2
7      int a[8] = {13, 15, 17, 9, 99, 77, 65, 43};
8      int d;
9      int largest;
10     int smallest;
11     for(int i=0; i<8; i+=1){
12         d=0;
13         for(int j=0; j<8; j+=1){
14             if(a[i]<=a[j]){d+=1;}}
15             if(d==8){smallest = a[i];}
16         d=0;
17         for(int j=0; j<8; j+=1){
18             if(a[i]>=a[j]){d+=1;}}
19             if(d==8){largest = a[i];}
20         }
21     cout<<"The largest element is "<<largest<<" and the smallest element is "<<smallest<<endl;
22
23     return 0;
24 }
25
```

Result:

```
The largest element is 99 and the smallest element is 9
```

```
-----
```

```
Process exited after 0.1147 seconds with return value 0
```

```
Press any key to continue . . .
```

HOME TASK 3:



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:

```
1  #include <iostream>
2
3  using namespace std;
4  int main()
5  {
6      // HOME TASK 3
7      int a[5]={0,0,0,0,0};
8      int temp;
9      cout<<"Please enter the elements"<<endl;
10     for(int i=0; i<5; i++){cin>>a[i];}
11     cout<<"The given array is {";
12     for(int z=0; z<5; z++){cout<<a[z]<<" ";}
13     cout<<"\n";
14     temp=a[1];
15     a[1]=a[3];
16     a[3]=temp;
17     cout<<"The swapped array is {";
18     for(int j=0; j<5; j++){cout<<a[j]<<" ";}
19     cout<<"\n";
20
21     return 0;
22 }
```

Result:

```
Please enter the elements
1
2
3
4
5
The given array is {1 2 3 4 5 }The swapped array is {1 4 3 2 5 }
-----
Process exited after 22.62 seconds with return value 0
Press any key to continue . . .
```