CS-114 - Fundamental of Programing

Home Tasks 8

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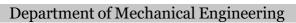
HOME TASK 1:

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

Code:

```cpp
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+=1){cin>>a[i];}
16       for(int i=0; i<l; i+=1){
17           d=0;
18           for(int j=0; j<l; j+=1){if(a[i]==a[j]){d+=1;}}
19           if(d<=dmax){continue;}
20           if(d>dmax){dmax=d; pos=i;}
21           if(d==1 && dmax==1){cout<<"All elements are present only once"; return 0;}
22       }
23       cout<<"In the given array {";
24       for(int c=0; c<l; c+=1){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 . . .
```

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:

```cpp
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:

```cpp
#include <iostream>

using namespace std;
int main()
{
// HOME TASK 3
    int a[5]={0,0,0,0,0};
    int temp;
    cout<<"Please enter the elements"<<endl;
    for(int i=0; i<5; i+=1){cin>>a[i];}
    cout<<"The given array is {";
    for(int z=0; z<5; z+=1){cout<<a[z]<<' ';}
    cout<<"}";
    temp=a[1];
    a[1]=a[3];
    a[3]=temp;
    cout<<"The swapped array is {";
    for(int j=0; j<5; j+=1){cout<<a[j]<<' ';}
    cout<<"}";

    return 0;
}
```

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 . . .
```