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LAB Task 1 Data Structures

Q1: Populate an array of your size choice and write a program to find the largest and smallest element in that array

Coding:

```
#include<iostream>
using namespace std;
int main()
{
   //declaring array and assign size
   int arr[5];
   int min,max;
   //Enter values
   cout<<"Enter values in array:"<<endl;
   for(int i=0;i<=4;i++)
   {
      cin>>arr[i];
   }
   //printing array
   cout<<"Array elements are:"<<endl;
   for(int i=0;i<=4;i++)
   {
      cout<<arr[i]<<"\t";

   }
   //To find min and max of aray
   min=arr[0];
   max=arr[0];
   cout<<endl;

   for(int i=0;i<=4;i++)
   {
      if(arr[i]<min)
      {

      min=arr[i];
      }


      if(arr[i]>max)
```

```
    {
    max=arr[i];
    }
  }
  cout<<"The smallest element in array is :"<<min<<endl;
  cout<<"The largest element in array is :"<<max<<endl;

  return 0;

}
```

Output:

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

ll_in_array.cpp -o Find_large_small_in_array } ; if ($?) { .\Find_large_small_in_array }
Enter values in array:
1
2
3
4
5
Array elements are:
1       2       3       4       5
The smallest element in array is :1
The largest element in array is :5
PS F:\6th semester\Data structures lab\Final LAB Tasks\LAB 1>
```

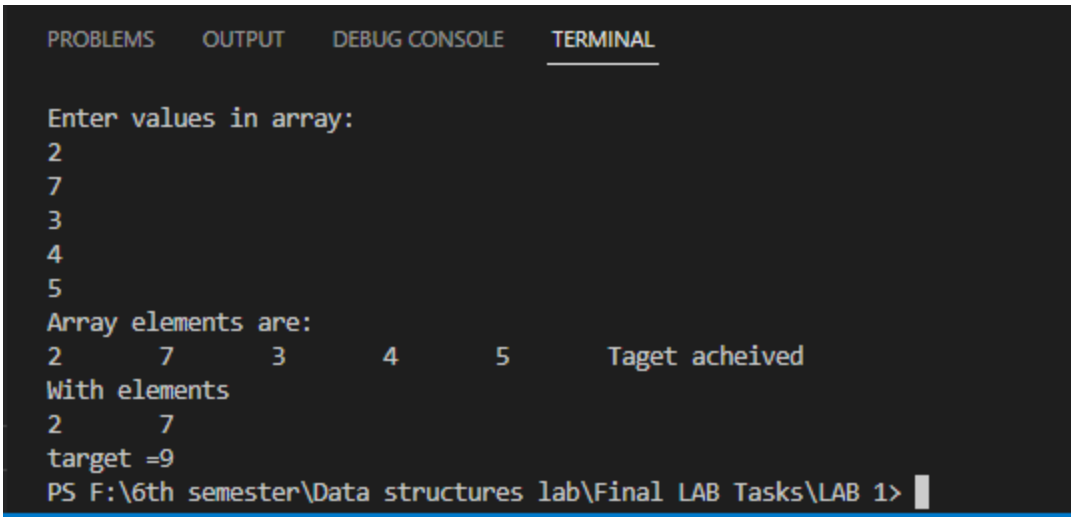
Q2: Given an array of integers nums and an integer target, return indices of the two numbers such that they add up to target. You may assume that each input would have exactly one solution, and you may not use the same element twice. You can return the answer in any order.

Coding:

```
#include<iostream>
using namespace std;
int main()
{
  //declaring array and assign size
  int arr[5];
  int target=9;
  //Enter values
  cout<<"Enter values in array:"<<endl;
  for(int i=0;i<=4;i++)
  {
    cin>>arr[i];
```

```
    }
    //printing array
    cout<<"Array elements are:"<<endl;
    for(int i=0;i<=4;i++)
    {
        cout<<arr[i]<<"\t";

    }
    for(int i=0;i<4;i++)
    {
        for (int j=i+1;j<4;j++)
        {
        if(arr[i]+arr[j]==target)
        {
            cout<<"Taget acheived"<<endl;

            cout<<"With elements "<<endl<<arr[i]<<"\t"<<arr[j]<<endl;
            cout<<"target ="<<target<<endl;

        }

        }
    }
    //else{
      //      cout<<"you miss target"<<endl;
        //}



    return 0;

}
```

Output:



Q3: Write a function find_small_val(int A[]) that given an array A of N integers, returns the smallest positive integer (greater than 0) that does not occur in A. For example, given A = [1, 3, 6, 4, 1, 2], the function should return 5.

Coding:

```
#include<iostream>
using namespace std;
int find_small_val(int A[],int size ){

for (int i = 1; i <= size; i++)        //for element check
{


   for (int j = 0; j < size; j++)         //whole array element check
   {

      // Handling only negative case here
      if (A[j]<0)            //if value is less then go in
      {          if(i==A[j]){       //if value of i not equal not in usuall this case will not be true and it goes end if condition (after positive check)
          //  it is true when first is negative and other value is positive

          if(i==size)
          {
             return i+1;
          }
       else if (i!=A[j] && j+1==size)
       {
         return i;
       }else {
```

```
        return 1;

        }
                        break;
       }
}
// Here positive case :
            if(i==A[j]){      //if value is equal inside
        if(i==size)           //check the last value
          {
             return i+1;
          }
                break;
        }if (i!=A[j] && j+1==size)        //if value is not inside and and it check the whole array just return that
missing value
        {
          return i;
        }
    }
}
    }

int main(){
    // int A[]={1,3,6,4,1,2};
 int A[] = {2, -1,-3 };
int size=3;
int answer;
answer=find_small_val(A,size);
cout<<"The answer is :"<<answer<<endl;
return 0;
}
```

Output:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL                                                    Code

PS F:\6th semester\Data structures lab\Final LAB Tasks\LAB 1> cd "f:\6th semester\Data structures lab\Final LAB Tasks\LAB 1\" ; if ($?) { g++ Find_miss_elem
ent.cpp -o Find_miss_element } ; if ($?) { .\Find_miss_element }
Find_miss_element.cpp: In function 'int find_small_val(int*, int)':
Find_miss_element.cpp:44:5: warning: control reaches end of non-void function [-Wreturn-type]
   44 |     }
      |     ^
The answer is :1
PS F:\6th semester\Data structures lab\Final LAB Tasks\LAB 1>
```

THE END_____.