DSA Bootcamp Assignment

Q 1. Write a program to swap two numbers.

```cpp
include<iostream>

using namespace std;

int main()
{
        int a = 25, b = 10, n;
        cout<<"Before Swapping "<<endl;
        cout<<"a = "<< a <<", b = "<< b <<endl;


        n = a;
        a = b;
        b = n;


        cout<<"\nAfter Swapping "<<endl;
        cout<<"a = "<< a <<", b = "<< b <<endl;


        return 0;
}
```

Q 2. Write a program to find the largest number among three numbers entered by the user.

```cpp
#include<iostream>

using namespace std;
```

```cpp
int main()
{
        int n1, n2, n3;
        cout<<"Enter three numbers: ";
        cin>> n1 >> n2 >> n3;

        if(n1>n2 && n1>n3){
                cout<<"Largest Number: "<<n1;
        }

        if(n2>n1 && n2>n3){
                cout<<"Largest Number: "<<n2;
        }
        else{
                cout<<"Largest Number: "<<n3;
        }

        return 0;
}
```

Q 3. Write a program to check whether a year entered by a user is leap year or not.

```cpp
#include<iostream>
using namespace std;
int main()
```

```cpp
{
    int year;
    cout<<"Enter a year: ";
    cin>> year;

    if(year%4 == 0){
        if(year % 100 == 0){
            if(year % 400 == 0){
                cout<< year <<" is a leap year.";
            }
            else{
                cout<< year <<" is not a leap year.";
            }
        }
        else{
            cout<< year <<" is a leap year.";
        }
    }
    else{
        cout<< year <<" is not a leap year.";
    }

    return 0;
}
```

Q 4. Write a program to display Fibonacci series upto nth term.(Using loops)

```cpp
#include<iostream>
using namespace std;
int main()
{
        int n1 = 0, n2 = 1, n3, i, number;
        cout<<"Enter the number of elements: ";
        cin>> number;


        cout<< n1 <<" "<< n2 <<" ";
        for(i = 2; i < number; ++i){
                n3 = n1 + n2;
                cout<< n3 <<" ";
                n1 = n2;
                n2 = n3;
        }

        return 0;
}
```

Q 5. Write a program to check whether a number is prime or not.

```cpp
#include<iostream>
using namespace std;
```
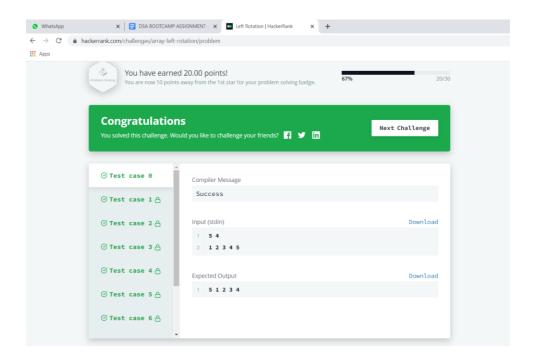
```cpp
int main()
{
        int n, i, m = 0, flag = 0;
        cout<<"Enter the number to check: ";
        cin>> n;
        m = n/2;

        for(i = 2; i <= m; i++){
                if(n % i == 0){
                        cout<<"Number is not prime "<<endl;
                        flag = 1;
                        break;
                }
        }
        if(flag == 0)
                cout<<"Number is prime "<<endl;

        return 0;
}
```

Q 6. Print this pattern using loops

For n = 5

```
        *

    *       *
```

```
    *       *       *
  *       *       *       *
*       *       *       *       *
```

```cpp
#include<iostream>
using namespace std;
void triangle(int n){
        int k = 2 * n - 2;


        for(int i = 0; i < n; i++){
                for(int j = 0; j < k; j++)
                        cout<< " ";
                k = k - 1;
                for(int j = 0; j <= i; j++){
                        cout << " * ";
                }
                cout << endl;
        }
}
int main()
{
        int n = 5;
        triangle(n);
        return 0;
}
```
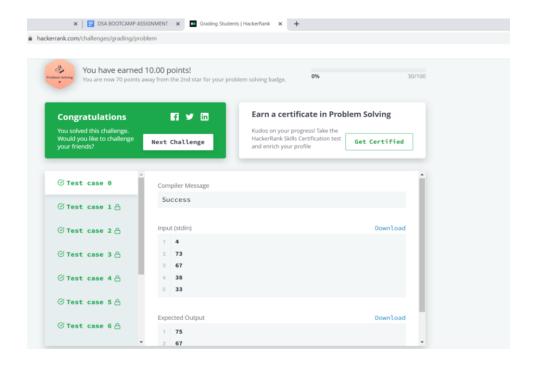
Q 7. Write a program that takes n elements from the user and display the second largest element of an array.

```cpp
#include<iostream>

using namespace std;

int main()

{

        int n, num[50], largest, second;

        cout<<"Enter number of elements: ";

        cin>>n;

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

                cout<<"Enter array element"<<(i+1)<<": ";

                cin>>num[i];

        }

        if(num[0]<num[1]){

                largest = num[1];

                second = num[0];

        }

        else{

                largest = num[0];

                second = num[1];

        }

        for(int i = 2; i < n; i++){

                if(num[i]>largest){

                        second = largest;
```

```
                    largest = num[i];

            }

            else if(num[i]>second && num[i]!=largest){

                    second = num[i];

            }

        }

        cout<<"Second largest element in an array: "<<second;

        return 0;

    }
```

Q 8. Array left rotation hackkerrank problem.

```
                                    Change Theme   Language  C++          v   ⟳  ⤢  ⋮

1   #include <iostream>
2   #include <vector>
3   using namespace std;
4
5   int main()
6 v {
7       int n, d;
8
9       cin >> n;
10      cin >> d;
11
12      vector<int> arr;
13 v    for(int i = 0; i < n; i++){
14          int tmp;
15          cin >> tmp;
16          arr.push_back(tmp);
17      }
18
19 v    for(int i = 0; i < n; i++){
20          cout << arr[(i+d) % n] <<" ";
21      }
22      return 0;
23  }
24
25
                                                            Line: 20 Col: 38
```

Q 9. Grading students problem in hackkerrank.


```cpp
#include <bits/stdc++.h>

using namespace std;

int main()
{
    int n, a;
    vector<int> ar;
    for(int i = 40; i <= 100; i += 5)ar.push_back(i);
    cin>>n;
    for(int i = 0; i < n; i++){
        cin>>a;
        bool flag = true;
        for(int j = 0; j < ar.size(); j++){
            if(ar[j] - a < 3 && (ar[j] - a) > 0){
                cout<<ar[j]<<endl;
                flag = false;
                break;
            }
        }
        if(flag)cout<< a <<endl;
    }
}
```

You have earned 10.00 points!
You are now 70 points away from the 2nd star for your problem solving badge.

0%   30/100

Congratulations   f y in

You solved this challenge.
Would you like to challenge   **Next Challenge**
your friends?

Earn a certificate in Problem Solving

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HackerRank Skills Certification test   **Get Certified**
and enrich your profile

✓ Test case 0   Compiler Message

                       Success
✓ Test case 1 🔒

✓ Test case 2 🔒   Input (stdin)   Download

                       1   4
✓ Test case 3 🔒   2   73
                       3   67
✓ Test case 4 🔒   4   38
                       5   33
✓ Test case 5 🔒

                       Expected Output   Download
✓ Test case 6 🔒
                       1   75
                       2   67

Q 10. CamelCase problem in hackerrank.

Change Theme   Language C++   ⌄   ⟳ ⤢ ⋮

```
1    #include <bits/stdc++.h>
2
3    using namespace std;
4
5    int main()
6 ⌄  {
7        string str;
8        int cnt = 1;
9        cin>>str;
10       int len = str.length();
11 ⌄     for(int i = 0; i < len; i++){
12           if(str[i]>=65 && str[i]<=90)cnt++;
13       }
14       cout<<cnt<<endl;
15       return 0;
16   }
17
```

You have earned 15.00 points!
You are now 55 points away from the 2nd star for your problem solving badge.

Problem Solving

21%   45/100

Congratulations

You solved this challenge. Would you like to challenge your friends?

Next Challenge

✓ Test case 0

✓ Test case 1 🔒

✓ Test case 2 🔒

✓ Test case 3 🔒

✓ Test case 4 🔒

✓ Test case 5 🔒

✓ Test case 6 🔒

Compiler Message

Success

Input (stdin)   Download

1   saveChangesInTheEditor

Expected Output   Download

1   5