DSA BOOTCAMP ASSIGNMENT

Q1. Write a program to Swap to two numbers.

```
#include<iostream>
Using namespace std;
Void swap (int &x,&y){
        int temp =x;
        x=y;
        y=temp;
}
int main ()
{
        int a=10,b=18,temp;
        cout<<" in main function before swapping<<endl;
        cout<,a<<" "<<b;

        swap(x,y);
        cout<<"in main function after swapping"<<endl;
        cout<<a<<" "<<b;
        return 0;
}
```

Q2. Write a program to find largest number among the three numbers entered by the user

```
#include<iostream>
Using namespace std;
int main ()
{
        int a, b, c;
        cout<<" enter  value of a"<<endl;
        cin>>a;
        cout<<" enter  value of b"<<endl;
        cin>>b;
        cout <<" enter  value  of c"<<endl;
        cin>>c;
        if(a>b&&a>c){
                cout<<"a is largest"<<endl;
        }else if(b>a&&b>c){
                        cout<<"b is largest"<<endl;
        }else{
                cout<<"c is largest"<<endl;
                }


                return 0;
```

```
}
```

Q3. Write a program to check whether a year entered by a user is Leap year or not.

```
#include<iostream>
using namespace std;
int main()
{
        int yr,leap;
        Cout<<”enter the year”<<endl;
        Cin>>year;
        leap=(yr%4==0)?((yr%100==0)?((yr%400==0)?1:0):1):0;
        if(leap==1)
                Cout<<yr <<”is a leap year<endl;
        else
                Cout<<yr<<”is not a leap year”;
        return 0;
}
```

Q4. Write a program to display Fibonacci Series upto nth term. (Using loops)

```
#include<iostream>
using namespace std;
int main()
{
        int n,i,sum=0;
        cout<<”enter the value of n”<<endl;
        cin>>n;
        for(i =1;i<=n;i++){
                sum= sum +i;
        }
        cout<<sum<<endl;
        return 0;
}
```

Q5. Write a program to check whether a number is Prime or Not.

```
#include<iostream>
using namespace std;
int main()
{
        int i,n,k;
        cout<<"enter the value of n"<<endl;
        cin>>n;
        for(i=1;i<=n;i++)
        {
                if(n%i==0)
                {
                        k++;
                }
        }
        if(k==2)
        {
                Cout<<"n is a prime number"<<endl;
        }
        else
        {
                Cout<<"n is not a prime number"<<endl;
        }
        return 0;
}
```

Q6. Print this pattern using loops

For n=5

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

```
#include<iostream>
using namespace std;
int main()
{
        int n,I,j,k;
        n=5;
        for(i=1;i<=5;i++)
        {
                for(j=i;j<5;j++)
                {
                        for (k=1;k<(i*2);k++)
```

```
                {
                        Cout<<"*";
                }
                Cout<<endl;
        }
return0;
}
```

Q7.Write a program that takes n elements from the user and displays the second largest element of an array.

```
#include<iostream>
using namespace std;
int main ()
{
    int A[10], n, i, j, x;
    cout << "Enter size of array : ";
    cin >> n;
    cout << "Enter elements of array : ";
    for (i = 0; i < n; i++)
        cin >> A[i];
    for (i = 0; i < n; i++)
    {
        for (j = i + 1; j < n; j++)
        {
            if (A[i] < A[j])
            {
                x = A[i];
                A[i] = A[j];
                A[j] = x;
```

```
            }
        }
    }
    cout << "Second largest number : " << A[1];
    cout << "\nSecond smallest number : " << A[n - 2];
    return 0;
}
```

Q8. https://www.hackerrank.com/challenges/array-left-rotation/problem

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

Using namespace std;

string ltrim(const string &);
string rtrim(const string &);
vector<string> split(const string &);



vector<int> rotateLeft(int d, vector<int> arr) {

}

int main()
{
    ofstream fout(getenv("OUTPUT_PATH"));

    string first_multiple_input_temp;
    getline(cin, first_multiple_input_temp);

    vector<string> first_multiple_input = split(rtrim(first_multiple_in
put_temp));

    int n = stoi(first_multiple_input[0]);

    int d = stoi(first_multiple_input[1]);

    string arr_temp_temp;
    getline(cin, arr_temp_temp);
```

```
    vector<string> arr_temp = split(rtrim(arr_temp_temp));

    vector<int> arr(n);

    for (int i = 0; i < n; i++) {
        int arr_item = stoi(arr_temp[i]);

        arr[i] = arr_item;
    }

    vector<int> result = rotateLeft(d, arr);

    for (size_t i = 0; i < result.size(); i++) {
        fout << result[i];

        if (i != result.size() - 1) {
            fout << " ";
        }
    }

    fout << "\n";

    fout.close();

    return 0;
}

string ltrim(const string &str) {
    string s(str);

    s.erase(
        s.begin(),
        find_if(s.begin(), s.end(), not1(ptr_fun<int, int>(isspace)))
    );

    return s;
}

string rtrim(const string &str) {
    string s(str);

    s.erase(
        find_if(s.rbegin(), s.rend(), not1(ptr_fun<int, int>(isspace)))
.base(),
        s.end()
```

```
    );

    return s;
}

vector<string> split(const string &str) {
    vector<string> tokens;

    string::size_type start = 0;
    string::size_type end = 0;

    while ((end = str.find(" ", start)) != string::npos) {
        tokens.push_back(str.substr(start, end - start));

        start = end + 1;
    }

    tokens.push_back(str.substr(start));

    return tokens;
}
```

Q9. https://www.hackerrank.com/challenges/grading/problem

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

using namespace std;

string ltrim(const string &);
string rtrim(const string &);


vector<int> gradingStudents(vector<int> grades) {

}

int main()
{
    ofstream fout(getenv("OUTPUT_PATH"));

    string grades_count_temp;
    getline(cin, grades_count_temp);

    int grades_count = stoi(ltrim(rtrim(grades_count_temp)));
```

```
    vector<int> grades(grades_count);

    for (int i = 0; i < grades_count; i++) {
        string grades_item_temp;
        getline(cin, grades_item_temp);

        int grades_item = stoi(ltrim(rtrim(grades_item_temp)));

        grades[i] = grades_item;
    }

    vector<int> result = gradingStudents(grades);

    for (size_t i = 0; i < result.size(); i++) {
        fout << result[i];

        if (i != result.size() - 1) {
            fout << "\n";
        }
    }

    fout << "\n";

    fout.close();

    return 0;
}

string ltrim(const string &str) {
    string s(str);

    s.erase(
        s.begin(),
        find_if(s.begin(), s.end(), not1(ptr_fun<int, int>(isspace)))
    );

    return s;
}

string rtrim(const string &str) {
    string s(str);

    s.erase(
        find_if(s.rbegin(), s.rend(), not1(ptr_fun<int, int>(isspace)))
.base(),
```

```
        s.end()
    );

    return s;
}
```

Q10. https://www.hackerrank.com/challenges/camelcase/problem

```
#include<bits/stdc++.h>
Using namespace std;


 int camelcase(string s) {

}

int main()
{
    ofstream fout(getenv(“OUTPUT_PATH));

    string s;
    getline(cin, s);

    int result = camelcase(s);

    fout << result << "\n";

    fout.close();

    return 0;
}
```