ASSIGNMENT

DSA BOOTCAMP

K.Tharshika

1. Write a program to swap to two numbers.

```
#include  <iostream>
        using namespace std;
                int main ()
                {
                 int a = 5 , b=10 , temp;

                        temp = a;
                        a = b ;
                        b = temp;

        cout<< "a = " << a <<", b = " << b << endl;
        return 0;
                }
```

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

```
#include <iostream>
using namespace std;

        int main () {
                float 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;
if ( n3 >= n1 && n3 >= n2 )
        cout << " Largest number : " <<  n3;

return 0 ;
}
```

3. 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 years ;
        cout << "Enter a year : ";
        cin >> year;

if ( year % 4 == 0 ) {
        if ( year % 100 == 0 ) {
                if ( year % 400 == 0 )
                        cout  << year << " is the 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 ;
  }
```

4. Write a program to dispaly Fibonacci series upto nth term (using loop)

```
#include <iostream>
using namespace std;

int main () {
        int n , t1 = 0 , t2 = 1 , nextTrems : “’
   cout  << “Enter the number of terms : “’
   cin >> n ;

for ( int i = 1 ; i <= n ; ++i) {
        if ( i ==1 ) {
                cout  << t1 << “, “ ;
                continue;
        }
   if  ( i == 2 ) {
                cout << t2  << “ , “ ‘
                continue;
        }

                nextTerm = t1 + t2 ;
                t1 = t2 ;
                t2 = nextTerm;

        cout << nextTerm << “ , “ ;
        }

        return 0 ;
   }
```

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

```
#include <iostream>
using namespace std;

   int main () {
            int i , n ;
            bool isPrime = true ;
cout << " Enter a positive number : " ;
   cin >> n ;

if ( n == 0 | |  n == 1 ) {
   isPrime = false ;
}
   else {
            for ( i = 2 ; i <= n / 2 ; ++i ) {
                     if ( n % i == 0 ) {
                              isPrime = false ;
                              break;
                     }
            }
}

if ( isPrime)
   cout << n <<  "  is a prime number.";
else
   cout << n << "  is not a prime number.";

return 0 ;
   }
```

6. Print this pattern using loops
   For n = 5.

```
#include <iostream>
using namespace std;

  int main ()
  {
int n = 5 , s , i , j ;
for ( i = 1 ; i <= 5 ; i ++)
{
 for ( s = i ; s < 5; s++)
        cout << " " ;
 for ( j = 1 ; j <=i ; j++)
         cout << "*";
                cout << "\n";
                }
                  return 0 ;
                }
```

7. 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 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 array is :  " << second;
return 0 ;
}
```

8. Left Rotation

9. Grading Students

```
#include <map>
#include <set>
#include <list>
#include <cmath>
#include <ctime>
#include <deque>
#include <queue>
#include <stack>
#include <string>
#include <bitset>
#include <cstdio>
#include <limits>
#include <vector>
#include <climits>
#include <cstring>
#include <cstdlib>
#include <fstream>
#include <numeric>
#include <sstream>
#include <iostream>
#include <algorithm>
#include <unordered_map>
using namespace std;
int main(){
```

```
int n;
cin >> n;
for(int a0 = 0; a0 < n; a0++){
int grade;
cin >> grade;
if (grade >= 38) {
int rem = grade % 5;
if (rem >= 3) grade += 5 - rem;
}
cout << grade << endl;
}
return 0;
}
```

Q10 CamelCase

```
#include <map>
#include <set>
#include <list>
#include <cmath>
#include <ctime>
#include <deque>
#include <queue>
#include <stack>
#include <string>
#include <bitset>
#include <cstdio>
```

```
#include <limits>
#include <vector>
#include <climits>
#include <cstring>
#include <cstdlib>
#include <fstream>
#include <numeric>
#include <sstream>
#include <iostream>
#include <algorithm>
#include <unordered_map>

using namespace std;



int main(){
    string s;
    cin >> s;
    int t=1;
    for (int i=0;i<s.length();i++)
        if (isupper(s[i]))
        t++;
        cout<<t<<endl;
    return 0;
}
```