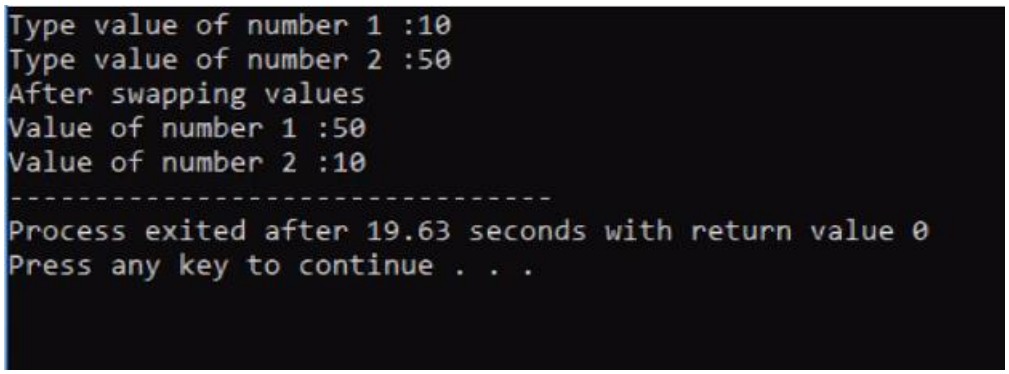
DSA BOOTCAMP ASSIGNMENT

Q1. Write a program to Swap to two numbers.

Code:

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

int main(){
	int num1;
	int num2;
	int temp;

	cout<<”Type value of number1 :”;
	cin>>num1;

	cout<<”Type value of number2 :”;
	cin>>num2;

	temp = num1;
	num1 = num2;
	num2 = temp;

	cout<<”After swapping values”<<endl;
	cout<<”Value of number 1 : ”<<num1<<endl;
	cout<<”Value of number 2 : ”<<num2;
	return 0;
}
```

Output:

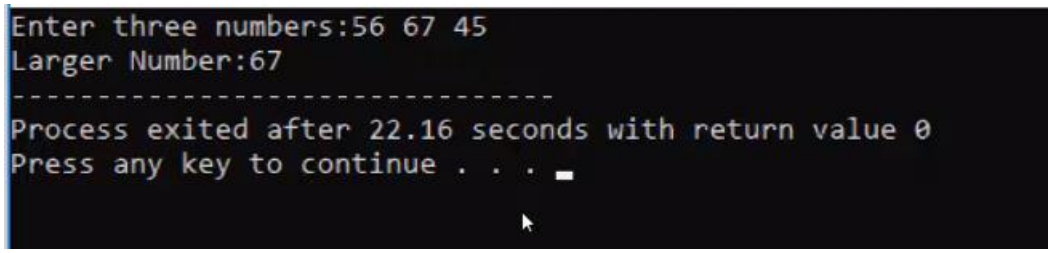


Q2. Write a program to find the largest number among three numbers entered by the user.

Code:

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

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

	if(n1>=n2 && n1>=n3){
		cout<<"Larger number: "<<n1;
	}
	 if(n2>=n1 && n2>=n3){
		cout<<"Larger number: "<<n2;
	}
	if(n3>=n1 && n3>=n2){
		cout<<"Larger number: "<<n3;
	}
	return 0;
}
```

Output:



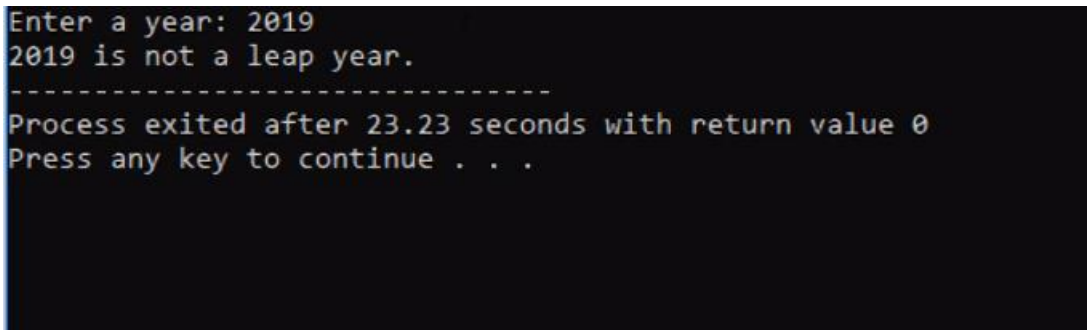
Q3. Write a program to check whether a year entered by a user is Leap year or not.

Code:

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

int main()
{
	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.";
}
```

```
    else
        cout<<year<<"is not a leap year";
    return 0;
}
```

Output:



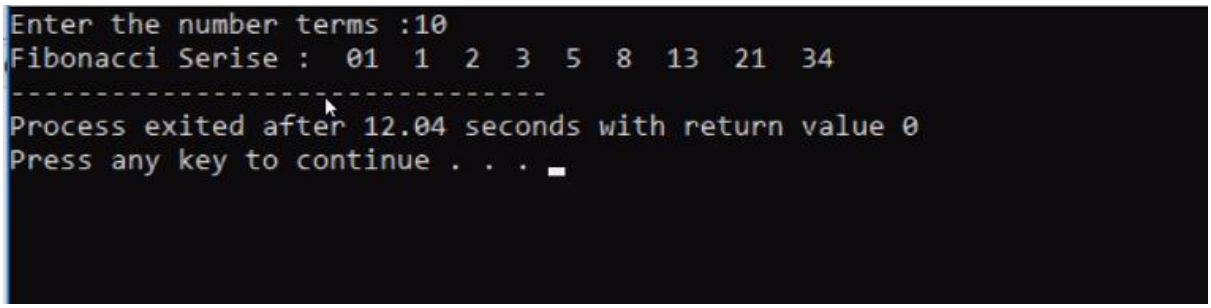
Q4. Write a program to display Fibonacci Series upto nth term. (Using loops)

Code:

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

int main(){
    int n, t1=0, t2=1, nextTerm = 0;
    cout<<"Enter the number terms :";
    cin>>n;

    cout<<"Fibonacci Serise: ";

    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;
}
```

Output:



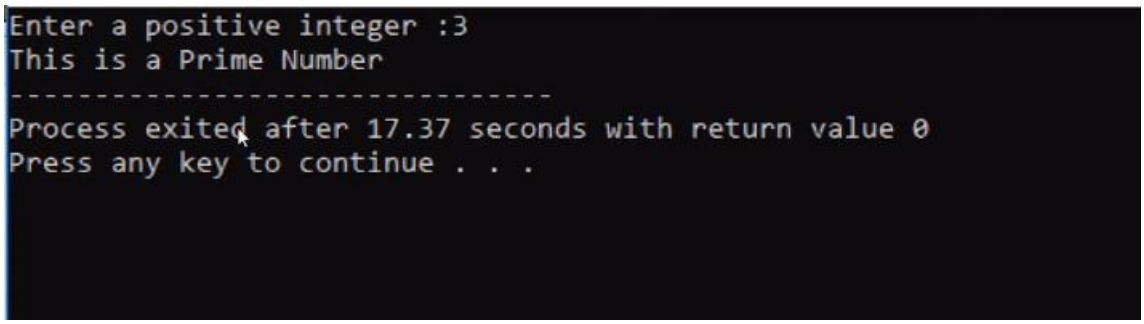
Q5. Write a program to check whether a number is Prime or Not.

Code:

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

int main(){
    int n, i;
    bool isPrime = true;

    cout<<"Enter a positive integer :";
    cin>>n;

    for(i=2; i<=n/2;++i){
```

```
                isPrime = false;
                break;
            }
        }
        If(isPrime)
            cout<<”This is a Prime Number”;
        else
            cout<<” This is not a Prime Number”;
        return 0;
}
```

Output:



Q6. Print this pattern using loops

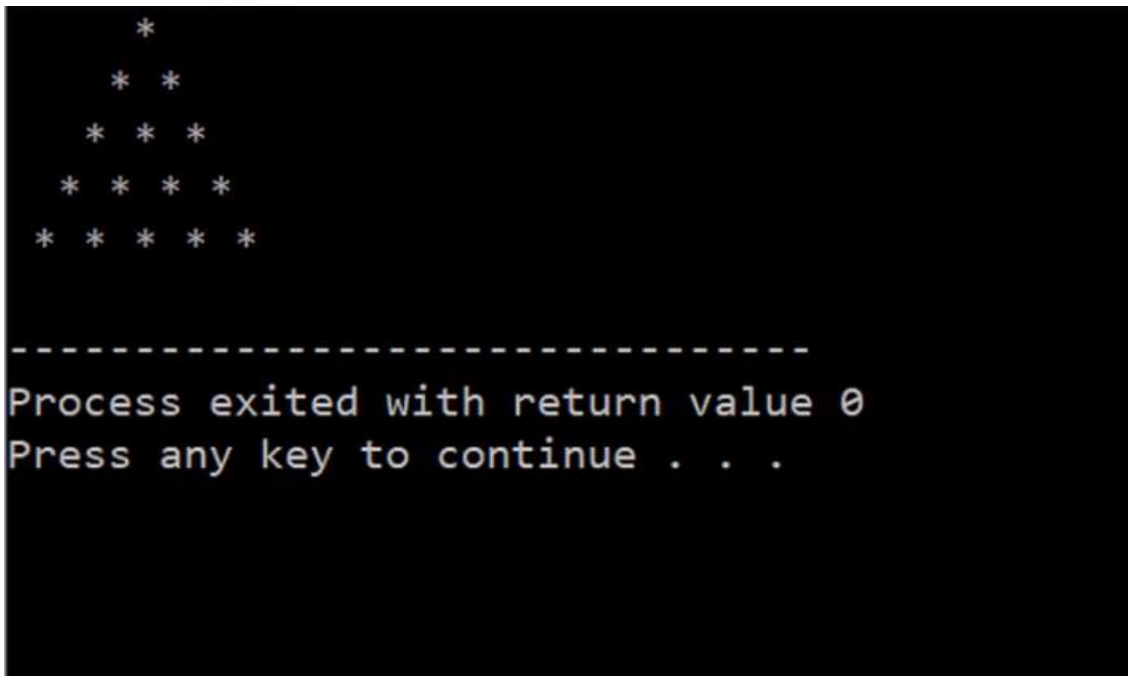
For n=5

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

Code:

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

int main(){
        for(int i=1; i<=5; i++){
                for(int j=5; j>I; j++)
                        cout<<”  “;
        }
        for(int k=1; k<=5; k++){
                        cout<<;
        }

return 0;
}
```

Output:



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

Code:

```
#include<iostream>
using namespace std;
int main(){
	int n, i;
	cout<<"Enter number of elements in an array \n";
	cin>>n;

	int arr[n];
	cout<<"Enter values in an array \n";

	for(i=0; i<n; i++){
		cin>>arr[i];
	}

	int max = INT_MIN;
	int second_max = INT_MIN;
```

```
        for(i=0; i<n; i++){
            if(arr[i]>max){
                second_max = max;
                max = arr[i];
            }
            if(arr[i] <max && arr[i]>second_max){
                second_max = arr[i];
            }
        }
        cout<<"Second highest number in an unsorted array
is"<<second_max;
        return 0;
}
```

Output:

```
Enter number of elements in an array
5
Enter values in an array
8
1
4
9
9
Second highest number in an unsorted array is 8
RUN FINISHED; exit value 0; real time: 11s; user: 0ms; system: 0ms
```

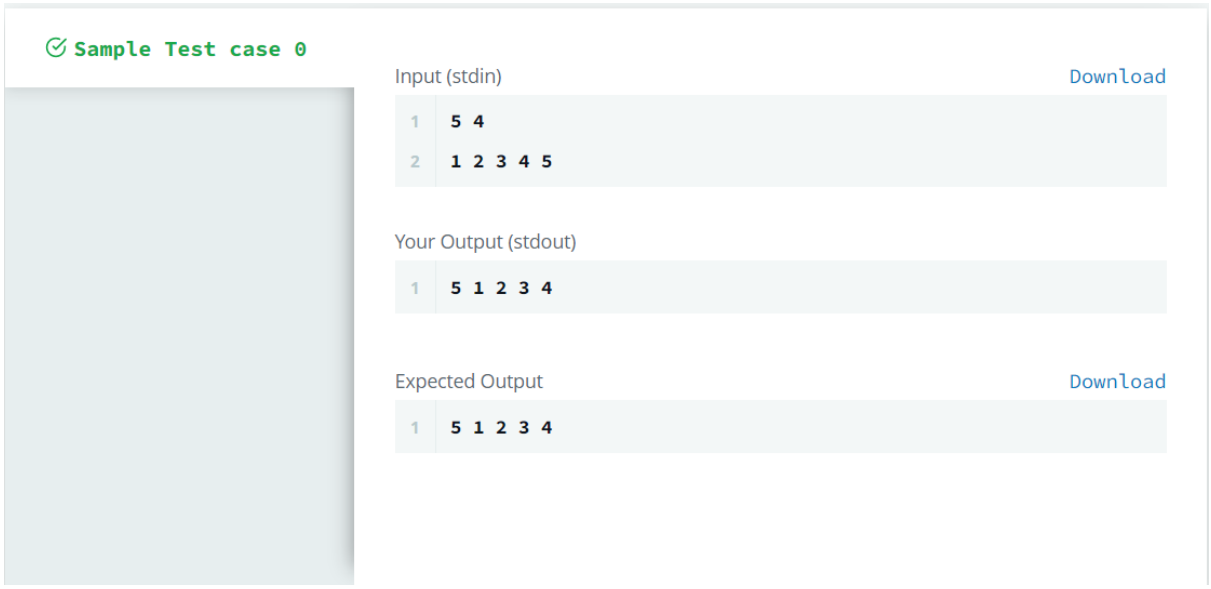
Q8. Left Rotation

Code:

```
#include <cmath>
 #include <cstdio>
 #include <vector>
 #include <iostream>
 #include <algorithm>
 using namespace std;


 int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    int n,d;
    cin>>n>>d;
    int a[n];
    for(int i=0;i<n;i++){
```

```
        cin>>a[i];
    }
    for(int i=d;i<n;i++){
        cout<<a[i]<<" ";
    }
    for(int i=0;i<d;i++){
        cout<<a[i]<<" ";
    }
    return 0;
}
```

Output:



Q9. Grading Students

Code:

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

#define lli long long int
#define pb push_back
#define pii pair <int, int>
#define pll pair <lli, lli>
#define _F first
#define _S second
#define mset(x) memset(x, 0, sizeof(x))
#define fastio() ios_base::sync_with_stdio(0)

using namespace std;

int main()
{
   int t;
   cin >> t;

   while(t--)
   {
      int x;
      cin >> x;

      if(x < 38)
         cout << x << endl;
      else
      {
         int r = 5 - (x % 5);

         if(r < 3)
            x += r;

         cout << x << endl;
      }
   }
}
```

Output:

Compiler Message

```
Success
```

Input (stdin) Download

```
4
73
67
38
33
```

Q10. CamelCase

Code:

```
#include <iostream>
#include <cstring>
#include <limits>
#include <iomanip>
#include <cmath>
#include <fstream>
#include <map>
#include <algorithm>
#include <iterator>
#include <vector>
#include <set>
#include <cassert>
#define LL long long
#define vi vector<int>
#define vll vector<LL>
#define FOR(i,c) for(__typeof(c.begin()) i = c.begin(); i != c.end(); i++)
#define F first
#define S second
```

```
#define smax(a, b) a = max(a, b)
#define smin(a, b) a = min(a, b)
#define mod 1000000007ll
#define what_is(x) cout<<#x<<" is "<<x<<'\n'
#define pii pair<int, int>
#define pll pair<LL, LL>
#define pil pair<int, LL>
#define pli pair<LL, int>
using namespace std;
template<typename T> T gcd(T a, T b) { return b == 0?a: gcd(b, a % b); }
template<typename T> T LCM(T a, T b) { return a*(b/gcd(a, b)); }
template<typename T, typename S> T expo(T b, S e, const T &m){if(e <= 1)return e == 0?1: b;\
 return (e&1) == 0?expo((b*b)%m, e>>1, m): (b*expo((b*b)%m, e>>1, m))%m;}
template<typename T, typename S> T expo(T b, S e){if(e <= 1)return e == 0?1: b;\
 return (e&1) == 0?expo((b*b), e>>1): (b*expo((b*b), e>>1));}
template<typename T> T modinv(T a) { return expo(a, mod-2, mod); }
template<class T, class S> std::ostream& operator<<(std::ostream &os, const std::pair<T, S> &t) {
 os<<"("<<t.first<<", "<<t.second<<")";
 return os;
}
template<class T> std::ostream& operator<<(std::ostream &os, const std::vector<T> &t) {
 os<<"["; FOR(it,t) { if(it != t.begin()) os<<", "; os<<*it; } os<<"]";
 return os;
}
int main() {
    ios_base::sync_with_stdio(false);
    int res = 0;
    string s;
    cin >> s;
    for(auto &elem: s) {
        if(elem >= 'A' and elem <= 'Z') {
            res++;
        }
    }
    cout << (res + 1) << endl;
    return 0;
}
```

Output:

Compiler Message

```
Success
```

Input (stdin) Download

```
1  singleword
```