# DSA BOOTCAMP ASSIGNMENT

Q1. Write a program to Swap to two numbers.

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

   cout << "Before swapping." << endl;
   cout << "a = " << a << ", b = " << b << endl;

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

   cout << "\n After swapping." << endl;
   cout << "a = " << a << ", b = " << b << endl;

   return 0;
}
```

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

```
#include <iostream>
#include<conio.h>
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;
   else if ((n2 >= n1) && (n2 >= n3))
      cout << "Largest number: " << n2;
   else
      cout << "Largest number: " << n3;

   return 0;
}
```

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

```
#include <iostream>
#include<conio.h>
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.";

   return 0;
}
```

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

```
#include <iostream>
#include<conio.h>
using namespace std;
int main()
{
   int n, t1 = 0, t2 = 1, nextTerm = 0;
   cout << "Enter the number of terms: ";
   cin >> n;
   cout << "Fibonacci Series: ";

   for (int i = 1; i <= n; ++i) {
      // Prints the first two terms.
      if(i == 1) {
         cout << t1 << ", ";
         continue;
      }
      if(i == 2) {
         cout << t2 << ", ";
```

```
            continue;
        }
        nextTerm = t1 + t2;
        t1 = t2;
        t2 = nextTerm;
        cout << nextTerm << ", ";
    }
    return 0;
}
```

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

```
#include <iostream>
using namespace std;
int main()
{
  int n, i, m=0, flag=0;
  cout << "Enter the Number to check Prime: ";
  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;
}
```

Q6. Print this pattern using loops

For n=5

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

```
#include<iostream.h>
#include<conio.h>
using namespace std;
int main()
{
   int i, space, j;
   for(i=1; i<=6; i++)
   {
      for(space=5; space>i; space--)
         cout<<" ";
      for(j=0; j<i; j++)
         cout<<"* ";
      cout<<endl;
   }
   cout<<endl;
   return 0;
}
```

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

```
#include<iostream.h>
#include<conio.h>
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;
}
```

Q8. Given an array and a number, d, perform d left rotations on the array

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

void rotate(vector<int>& vec, int d)
{
    if (d == 0)
        return;
     for (int i = 0; i < d; i++)
    {
        vec.push_back(vec[0]);
        vec.erase(vec.begin());
    }
     for (int i = 0; i < vec.size(); i++)
    {
        cout << vec[i] << " ";
    }
}

int main()
{
    vector<int> vec = {1, 2, 3, 4, 5, 6};
    int n = vec.size();
    int d = 2;
    rotate(vec, d % n);
    return 0;
}
```

Q9. Grading Students

```
#include <bits/stdc++.h>
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 <bits/stdc++.h>
using namespace std;
typedef long long ll;
typedef unsigned long long ull;
typedef pair<int, int> ii;

int main() {
   string s;
   cin>>s;
   int count = 1;
   for (const char c : s) {
      if (c >= 'A' && c <= 'Z')
         ++count;
   }
   cout<<count<<endl;
}
```