**DSA BOOTCAMP ASSIGNMENT**

**NAME – PRAJWAL KATHWATE**

Q1. Write a program to Swap to two numbers.

Code-

include <iostream>

using namespace std;

int main()

{

int a,b;

cin>>a>>b;

cout<<"Before swapping value of a is "<<a<<" and b is "<<b<<"\n";

int t=a;

a=b;

b=t;

cout<<"After swapping value of a is "<<a<<" and b is "<<b;

cout <<endl;

return 0;

}

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 a,b,c;

cin>>a>>b>>c;

cout<< "Entered no are "<<a<<" "<<b<<" "<<c<<"\n";

if(a>b && a>c)

{

cout<<a<< " is largest\n";

}

else if(b>a && b>c)

{

cout<<b<< " is largest\n";

}

else{

cout<<c<< " is largest\n";

}

return 0;

}

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;

cin>>year;

if (year % 400 == 0) {

cout<<year<<" is a leap year.";

}

else if (year % 100 == 0) {

cout<<year<<" is not a leap year.";

}

else if (year % 4 == 0) {

cout<<year<<" is a leap year.";

}

else {

cout<<year<<" is not a leap year.";

}

return 0;

}

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

Code-

#include <iostream>

using namespace std;

int main()

{

int n,fib,a=0,b=1,i;

cout<<"Enter the nth term";

cin>>n;

cout<<"Fibonacci series \n";

for(i=1;i<=n;i++)

{

if(i==1)

{

cout<<a<<", ";

}

if(i==2)

{

cout<<b<<", ";

}

fib=a+b;

a=b;

b=fib;

cout<<fib<<", ";

}

return 0;

}

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

Code-

#include <iostream>

using namespace std;

int main()

{

int n,flag=0;

cout<<"Enter the number ";

cin>>n;

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

{

if(n%i==0)

{

flag=1;

break;

}

}

if(n==1)

{

cout<<" 1 is neither prime nor composite \n";

}

else if(flag==1)

{

cout<<n<< " is not a prime number\n ";

}

else{

cout<<n<< " is a prime number\n ";

}

return 0;

}

Q6. Print this pattern using loops

For n=5

    \*

  \* \*

  \* \* \*

\* \* \* \*

\* \* \* \* \*

Code-

#include <iostream>

using namespace std;

int main()

{

int n=5,k=n-1,i,j;

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

for(j=0;j<k;j++)

cout<<" ";

k=k-1;

for(j=0;j<i+1;j++)

{

cout<<"\* ";

}

cout<<endl;

}

return 0;

}

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

Code-

#include <bits/stdc++.h>

using namespace std;

int main()

{

int n,i;

cin>>n;

int a[n];

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

{

cin>>a[i];

}

sort(a,a+n);

for(i=n-2;i>=0;i--)

{

if(a[i]!=a[i-1])

{

cout<<"The second largest element is "<<a[i];

return 0;

}

}

}

Q 8 A left rotation operation on an array of size  shifts each of the array's elements  unit to the left. Given an integer, , rotate the array that many steps left and return the result.

Code –

#include <cmath>

#include <cstdio>

#include <vector>

#include <iostream>

#include <algorithm>

using namespace std;

int main() {

int N, d, i;

cin >> N >> d;

int start = N - d;

int \*arr = new int[N];

for (i=0; i<N; ++i) {

if (start == N) start = 0;

cin >> arr[start++];

}

for (i=0; i<N; ++i) cout << arr[i] << " ";

return 0;

}

Q9 HackerLand University has the following grading policy:

* Every student receives a  in the inclusive range from  to .
* Any  less than  is a failing grade.

Sam is a professor at the university and likes to round each student's  according to these rules:

* If the difference between the  and the next multiple of  is less than , round  up to the next multiple of .
* If the value of  is less than , no rounding occurs as the result will still be a failing grade.

Code-

#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 There is a sequence of words in [CamelCase](https://en.wikipedia.org/wiki/CamelCase) as a string of letters, s having the following properties:

* It is a concatenation of one or more words consisting of English letters.
* All letters in the first word are lowercase.
* For each of the subsequent words, the first letter is uppercase and rest of the letters are lowercase.

Given , determine the number of words in s

Code-

#include <map>

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#include <stack>

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#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;

}