

Placement Programs in CPP-2022

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1.Remove vowels in String

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

string remVowel(string str)
{
    regex r("[aeiouAEIOU]");
    return regex_replace(str, r, "");
}

int main()
{
    string str ;
    cout<<"Enter a string to remove vowels:"<<endl;
    cin>>str;
    cout << "The String after removing vowels "<<(remVowel(str));
    return 0;
}
```

2.Count Vowels in string

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

int vowelCount(char *sptr)
{
    int count = 0;
    while ((*sptr) != '\0')
    {
        if (*sptr == 'a' || *sptr == 'e' || *sptr == 'i'
            || *sptr == 'o' || *sptr == 'u')
        {
            count++;
        }

        sptr++;
    }

    return count;
}

int main()
{
    char str[30] ;
```

```

    cout<<"Enter String to count:"<<endl;
    cin>>str;
    cout << "Vowels in the given string: " << vowelCount(str);
    return 0;
}

```

3.Matrix Multiplication

```

#include <iostream>
using namespace std;
int main()
{
    int a[10][10],b[10][10],mul[10][10],r,c;
    int i,j,k;
    cout<<"enter the number of rows=";
    cin>>r;
    cout<<"enter the number of columns=";
    cin>>c;
    cout<<"enter the first matrix element=\n";
    for(i=0;i<r;i++)
    {
        for(j=0;j<c;j++)
        {
            cin>>a[i][j];
        }
    }
    cout<<"enter the second matrix element=\n";
    for(i=0;i<r;i++)
    {
        for(j=0;j<c;j++)
        {
            cin>>b[i][j];
        }
    }
    cout<<"multiply of the matrix=\n";
    for(i=0;i<r;i++)
    {
        for(j=0;j<c;j++)
        {
            mul[i][j]=0;
            for(k=0;k<c;k++)
            {
                mul[i][j]+=a[i][k]*b[k][j];
            }
        }
    }

    for(i=0;i<r;i++)
    {
        for(j=0;j<c;j++)
        {

```

```

        cout<<mul[i][j]<<" ";
    }
    cout<<"\n";
}
return 0;
}

```

4.Armstrong Number

```

#include <iostream>
using namespace std;
int main()
{
    int n,r,sum=0,temp;
    cout<<"Enter a three digit Number= ";
    cin>>n;
    temp=n;
    while(n>0)
    {
        r=n%10;
        sum=sum+(r*r*r);
        n=n/10;
    }
    n=temp;
    if(n==sum)
        cout<<n <<" is an Armstrong Number"<<endl;
    else
        cout<<n <<" is not an Armstrong Number"<<endl;
    return 0;
}

```

5.Palindrome

```

#include <iostream>
using namespace std;
int main()
{
    int n,r,sum=0,temp;
    cout<<"Enter the Number=";
    cin>>n;
    temp=n;
    while(n>0)
    {
        r=n%10;
        sum=(sum*10)+r;
        n=n/10;
    }
    if(temp==sum)
        cout<<"The number is Palindrome.";
}

```

```

else
    cout<<"The number is not Palindrome.";
return 0;
}

```

6.Number of words in a string

```

#include<iostream>

using namespace std;
int main ()
{
    char s[50];
    int count = 0, i;
    cout << "Enter a string : ";
    gets(s);
    for (i = 0; s[i] != '\0';i++)
    {
        if (s[i] == ' ')
            count++;
    }
    cout << "Number of words in the string are: " << count + 1;
    return 0;
}

```

7.Prime Number

```

#include <iostream>
using namespace std;

int main()
{

    int i, n;
    bool p = true;

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

    if (n == 0 || n == 1)
    {
        p = false;
    }

    for (i = 2; i <= n/2; ++i)
    {
        if (n % i == 0)
        {
            p = false;

```

```

        break;
    }
}

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

return 0;
}

```

8.Fibonacci Series

```

#include <iostream>
using namespace std;

int main()
{
    int n, t1 = 0, t2 = 1, next = 0;

    cout << "Enter the number of terms: ";
    cin >> n;

    cout << "Fibonacci Series: ";

    for (int i = 1; i <= n; ++i)
    {
        if(i == 1)
        {
            cout << t1 << " ";
            continue;
        }
        if(i == 2)
        {
            cout << t2 << " ";
            continue;
        }
        next = t1 + t2;
        t1 = t2;
        t2 = next;

        cout << t2 << " ";
    }
    return 0;
}

```

9.Anagram

```

#include<iostream>

```

```

#include<string.h>
using namespace std;
int main()
{
    char str1[20],str2[20];
    int len1, len2, i, j, f=0, nf=0;
    cout<<"Enter the First String: ";
    cin>>str1;
    cout<<"Enter the Second String: ";
    cin>>str2;
    len1 = strlen(str1);
    len2 = strlen(str2);
    if(len1 == len2)
    {
        for(i=0; i<len1; i++)
        {
            f = 0;
            for(j=0; j<len1; j++)
            {
                if(str1[i] == str2[j])
                {
                    f = 1;
                    break;
                }
            }
            if(f == 0)
            {
                nf = 1;
                break;
            }
        }
        if(nf == 1)
            cout<<"\nStrings are not Anagram";
        else
            cout<<"\nStrings are Anagram";
    }
    else
        cout<<"\nCharacter count Mismatched!";
    cout<<endl;
    return 0;
}

```

10.Swapping of two strings

```

#include<iostream>
#include<string>
using namespace std;
int main()
{

```

```

string str1,str2,temp;
cout<<"Enter String String 1: ";
cin>>str1;
cout<<"Enter String String 2: ";
cin>>str2;
temp=str1;
str1=str2;
str2=temp;
cout<<"After Swapping Strings are: "<<endl;
cout<<"String 1: "<<str1;
cout<<endl<<"String 2: "<<str2;

}

```

11. Most Occuring Elements in an Array

```

#include<bits/stdc++.h>
using namespace std;
int main()
{
    int n;
    cout<<"Enter size of array: ";
    cin>>n;
    int arr[n];
    cout<<"\nEnter array elements:\n";
    for(int i=0;i<n;i++)
    {
        cin>>arr[i];
    }

    int new_arr[10001]={0};
    for(int i=0;i<n;i++)
    {
        new_arr[arr[i]]++;
    }
    int max=0;
    int index;
    for(int i=0;i<=10000;i++)
    {
        if(max<new_arr[i])
        {
            index=i;
            max=new_arr[i];
        }
    }
    cout<<"\nMost occurred element in the array is "<<index<<"\n";
    return 0;
}

```


12.Program to shutdown computer

```
#include<stdlib.h>
int main()
{
    system("C:\\Windows\\System32\\shutdown /s");
    return 0;
}
```

13.Sort words in Order

```
#include <iostream>
#include <algorithm>
#include <vector>
#include <string>

using namespace std;

int main()
{
    vector<string> strArray = {"am", "I", "a", "cat" };

    sort(strArray.begin(), strArray.end());

    for (int i = 0; i < strArray.size(); i++)
        cout << strArray[i] << endl;

    return 0;
}
```

14.Count character frequency in a string

```
#include<iostream>
#include<stdio.h>
using namespace std;
int main()
{
    char str[100], ch;
    int i=0, freq=0;
    cout<<"Enter the String: ";
    gets(str);
    cout<<"Enter a Character to Find its Frequency: ";
    cin>>ch;
    while(str[i])
    {
        if(ch==str[i])
            freq++;
        i++;
    }
    cout<<"\nFrequency = "<<freq;
    cout<<endl;
    return 0;
}
```

```
}
```

15.LCM

```
#include <iostream>
using namespace std;
int main()
{
    int n1, n2, max, f= 1;
    cout << " Enter two numbers: \n";
    cin >> n1 >> n2;
    max= (n1 > n2) ? n1 : n2;
    while (f)
    {
        if(max % n1 == 0 && max % n2 == 0)
        {
            cout << " The LCM of " <<n1 << " and " << n2 << " is " << max;
            break;
        }
        ++max;
    }
    return 0;
}
```

16.HCF:

```
#include <iostream>
using namespace std;
int main()
{
    int n1, n2, hcf;
    cout << "Enter two numbers: ";
    cin >> n1 >> n2;
    if ( n2 > n1)
    {
        int temp = n2;
        n2 = n1;
        n1 = temp;
    }

    for (int i = 1; i <= n2; ++i)
    {
        if (n1 % i == 0 && n2 % i ==0)
        {
            hcf = i;
        }
    }

    cout << "Highest Common Factor for the given Numbers is= " << hcf;

    return 0;
}
```

```
}
```

17.Matrix Transpose

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

int main() {
    int a[10][10], transpose[10][10], row, column, i, j;

    cout << "Enter no. of rows:" << endl;
    cin >> row;
    cout << "Enter no. of rows:" << endl;
    cin >> column;

    cout << "\nEnter elements of matrix: " << endl;

    for (int i = 0; i < row; ++i) {
        for (int j = 0; j < column; ++j) {
            cout << "Enter element a" << i + 1 << j + 1 << ": ";
            cin >> a[i][j];
        }
    }
    cout << "\nEnter Matrix: " << endl;
    for (int i = 0; i < row; ++i) {
        for (int j = 0; j < column; ++j) {
            cout << " " << a[i][j];
            if (j == column - 1)
                cout << endl << endl;
        }
    }
    for (int i = 0; i < row; ++i)
        for (int j = 0; j < column; ++j) {
            transpose[j][i] = a[i][j];
        }

    cout << "\nTranspose of Matrix: " << endl;
    for (int i = 0; i < column; ++i)
        for (int j = 0; j < row; ++j) {
            cout << " " << transpose[i][j];
            if (j == row - 1)
                cout << endl << endl;
        }

    return 0;
}
```

18.Bubble Sort

```
#include<iostream>
using namespace std;
void swap(int &a, int &b)
```

```

{
    int temp;
    temp = a;
    a = b;
    b = temp;
}
void display(int *array, int size)
{
    for(int i = 0; i<size; i++)
        cout << array[i] << " ";
    cout << endl;
}
void bubbleSort(int *array, int size)
{
    for(int i = 0; i<size; i++)
    {
        int swaps = 0;
        for(int j = 0; j<size-i-1; j++)
        {
            if(array[j] > array[j+1])
            {
                swap(array[j], array[j+1]);
                swaps = 1;
            }
        }
        if(!swaps)
            break;
    }
}
int main()
{
    int n;
    cout << "Enter the number of elements: ";
    cin >> n;
    int arr[n];
    cout << "Enter elements:" << endl;
    for(int i = 0; i<n; i++)
    {
        cin >> arr[i];
    }
    cout << "Array before Sorting: ";
    display(arr, n);
    bubbleSort(arr, n);
    cout << "Array after Sorting: ";
    display(arr, n);
}

```

19.Amicable Numbers:

```

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

```

```

int ProDivSum(int n)
{
    int sum = 1;
    for (int i=2; i<=sqrt(n); i++)
    {
        if (n%i == 0)
        {
            sum += i;
            if (n/i != i)
                sum += n/i;
        }
    }
    return sum;
}

bool chkAmicable(int a,int b)
{
    return(ProDivSum(a) == b && ProDivSum(b) == a);
}

int main()
{
    int nm1,nm2;
    cout << " -----\n";
    cout<<" Enter the 1st number : ";
    cin>>nm1;
    cout<<" Enter the 2nd number : ";
    cin>>nm2;
    if( chkAmicable(nm1,nm2))
        cout << " The given numbers are an Amicable pair."<<endl;
    else
        cout << " The given numbers are not an Amicable pair."<<endl;

    return 0;
}

```

20.Simple and Compound Interest

```

#include<iostream>
#include<math.h>
using namespace std;
int main()
{
    float p,r,t,ci,si;
    cout<<"Enter Principle, Rate and Time : ";
    cin>>p>>r>>t;
    si=(p*r*t)/100;
    ci=p*pow((1+r/100),t);
    cout<<"\nSimple Interest : "<<si;
    cout<<"\nCompound Interest : "<<ci;
    return 0;
}

```

21.Factors of Given Numbers

```
#include<iostream>
using namespace std;
void factors(int num) {
    int i;
    for(i=1; i <= num; i++) {
        if (num % i == 0)
            cout << i << " ";
    }
}
int main() {
    int num = 25;
    cout << "The factors of " << num << " are : ";
    factors(num);
    return 0;
}
```

22.Print name in all possible combination:

```
#include <bits/stdc++.h>
using namespace std;
void permute(string a, int l, int r)
{
    if (l == r)
        cout<<a<<endl;
    else
    {
        for (int i = l; i <= r; i++)
        {
            swap(a[l], a[i]);
            permute(a, l+1, r);
            swap(a[l], a[i]);
        }
    }
}

int main()
{
    string str;
    cout<<"Enter a string:"<<endl;
    cin>>str;
    int n = str.size();
    permute(str, 0, n-1);
    return 0;
}
```