LAB ASSIGNMENT	
NAME: Aashirwad Kumar	**Roll NUMBER: IMH/10004/18**

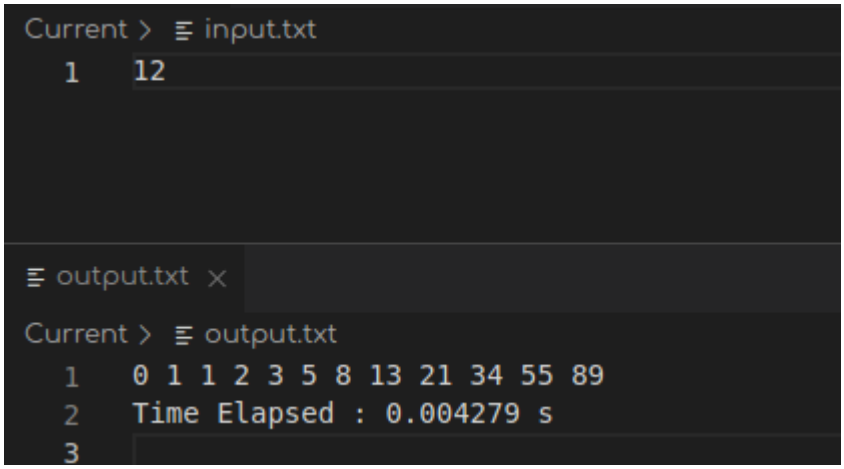
Question 1	The Fibonacci numbers are the numbers in the following integer sequence. 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 14... Construct an Algorithm by using Dynamic Programming.	Date : 15/06/2021

Write the code with proper indentation

```
#include <bits/stdc++.h>
using namespace std;
#define fast ios::sync_with_stdio(0);cin.tie(0);cout.tie(0);
typedef long long ll;typedef long double ld;typedef pair<int,int> pii;
#define F first
#define S second
#define PB push_back
#define MP make_pair

void solve(int n){
   int a[n+2];
   a[0]=0;
   a[1]=1;
   int i;

   for(i=2;i<n;i++){
      a[i]=a[i-1]+a[i-2];

   }

   for(i=0;i<n;i++){
      cout<<a[i]<<" ";

   }



}



int main(){
   fast;
   int n;
   int t = 1;
   cin >> n;
   while(t--){
       solve(n);
   }

   #ifndef ONLINE_JUDGE
      cout<<"\nTime Elapsed : " << 1.0*clock() / CLOCKS_PER_SEC << " s\n";
```

```
    #endif

    return 0;
}
```

Take a screenshot of your output and show here



Question 2	Given two sequences, find the length of longest subsequence present in both of them. A subsequence is a sequence that appears in the same relative order, but not necessarily contiguous. For example, “abc”, “abg”, “bdf”, “aeg”, “acefg”, .. etc are subsequences of “abcdefg”.	Date : 15/06/2021

Write the code with proper indentation

```
#include <bits/stdc++.h>
using namespace std;
#define fast ios::sync_with_stdio(0);cin.tie(0);cout.tie(0);
typedef long long ll;typedef long double ld;typedef pair<int,int> pii;
#define F first
#define S second
#define PB push_back
#define MP make_pair
const ll mod = 1e9+7, N = 2e6+7, M = 2e6+7, INF = INT_MAX/10;
ll powe(ll x, ll y){ x = x%mod, y=y%(mod-1);ll ans = 1;while(y>0){if (y&1){ans = (1ll * x * ans)%mod;}y>>=1;x = (1ll * x * x)%mod;}return ans;}



void solve(char *a,char *b,int n,int m)
{
   int lar[n+1][m+1];
   int i,j;

   for(i=0;i<=n;i++){
      for(j=0;j<=m;j++){
         if(i==0 || j==0){
            lar[i][j]=0;
         }
         else if(a[i-1]==b[j-1]){
            lar[i][j]=lar[i-1][j-1]+1;
         }
         else
         lar[i][j]=max(lar[i-1][j],lar[i][j-1]);
      }
   }

   cout<< lar[m][n];

}



int main(){
   fast;
   int t;
   char a[]="abcdefg";
```

```
    char b[]="accdabe";
    t = 1;
    int n=strlen(a);
    int m=strlen(b);
    while(t--){
        solve(a,b,n,m);
    }

     #ifndef ONLINE_JUDGE
       cout<<"\nTime Elapsed : " << 1.0*clock() / CLOCKS_PER_SEC << " s\n";
    #endif
    return 0;
}
```

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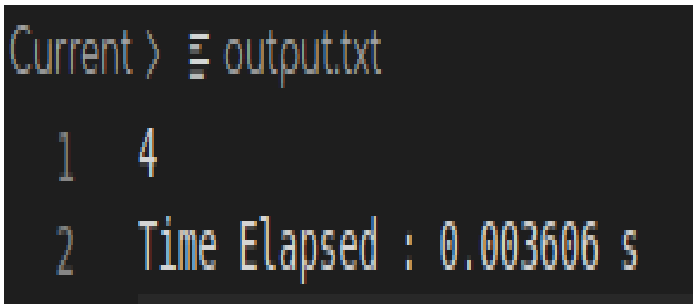


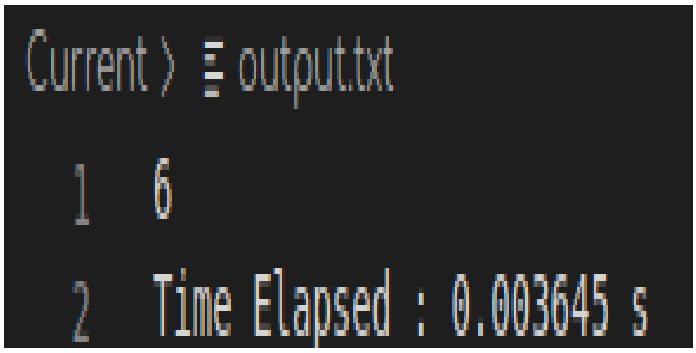
Question 3	Given a string, count how many maximum-length palindromes are present. (It need not be a substring).	Date : 15/06/2021

Write the code with proper indentation

```
#include <bits/stdc++.h>
using namespace std;
#define fast ios::sync_with_stdio(0);cin.tie(0);cout.tie(0);
typedef long long ll;typedef long double ld;typedef pair<int,int> pii;
#define F first
#define S second
#define PB push_back
#define MP make_pair

int fact(int n)
{
	int va = 1;
	for (int i = 1; i <= n; i++)
		va = va * i;
	return (va);
}


void np(string str, int n)
{

	unordered_map<char, int> mp;
	for (int i = 0; i < n; i++)
		mp[str[i]]++;

	int k = 0;
	int number = 0;
	int d = 1;
	int fi;
	for (auto it = mp.begin(); it != mp.end(); ++it)
	{

		if (it->second % 2 == 0)
			fi = it->second / 2;
		else
		{
			fi = (it->second - 1) / 2;
```

```
                k++;
            }
        number = number + fi;


            d = d * fact(fi);
        }


        if (number != 0)
            number = fact(number);

        int va = number / d;

        if (k != 0)
        {

            va = va * k;
        }

        cout<< (va);
}


int main()
{
        char str[] = "abaebab";
        int n = strlen(str);
        np(str, n);

    #ifndef ONLINE_JUDGE
      cout<<"\nTime Elapsed : " << 1.0*clock() / CLOCKS_PER_SEC << " s\n";
   #endif
        return 0;
}
```

Take a screenshot of your output and show here



Question 4	Given two strings s1 and s2, the task is to find whether the two strings contain the same characters that occur in the same order. For example: string “Rama” and string “Ram” contain the same characters in same order.	Date : 15/06/2021

Write the code with proper indentation

```
#include <bits/stdc++.h>
using namespace std;
#define fast ios::sync_with_stdio(0);cin.tie(0);cout.tie(0);
typedef long long ll;typedef long double ld;typedef pair<int,int> pii;
#define F first
#define S second
#define PB push_back
#define MP make_pair



void solve(char *a,char *b,int n,int m)
{
   int mi=min(n,m);
   int i;int f=0;
   for(i=mi-1;i>=0;i--){

      if(a[i]!=b[i]){
         f=1;cout<<"Not";break;
      }
   }
   if(f==0){
      cout<<"Yes";
   }

}
```

```
int main(){
   fast;
   int t;
   char a[]="rama";
   char b[]="ram";
   t = 1;
   int n=strlen(a);
   int m=strlen(b);
   while(t--){
       solve(a,b,n,m);
   }

    #ifndef ONLINE_JUDGE
      cout<<"\nTime Elapsed : " << 1.0*clock() / CLOCKS_PER_SEC << " s\n";
   #endif
   return 0;
}
```

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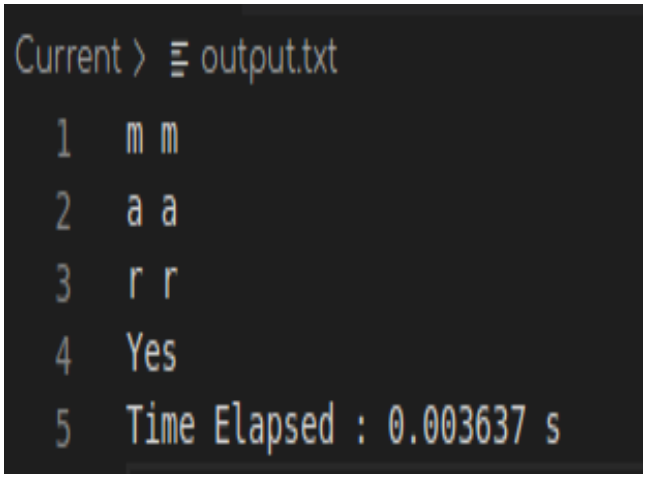

Instruction:

1. **Don’t try to copy and paste the code from each other or from the internet and write all the lab assignment in the above format only.**
2. **After writing all the lab assignments convert the word file to PDF then submit it in the google classroom in the assignment section.**
3. **All the file names must be your roll number in proper format .**