NATIONAL UNIVERSITY OF TECHNOLOGY, ISLAMABAD

Programing Fundamentals (CS121)

LAB: 14

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FILE HANDLING AND RECCURSIVE FUNCTIONS

TASK 1:

Perform the following operations on a named data.text:

- **Create the file and write a message into it.**
- **Read and display the content of the file.**
- **Append a new message to the file.**
- **Count the number of words in the file.**
- **Rename the file to info.txt.**
- **Delete the file.**

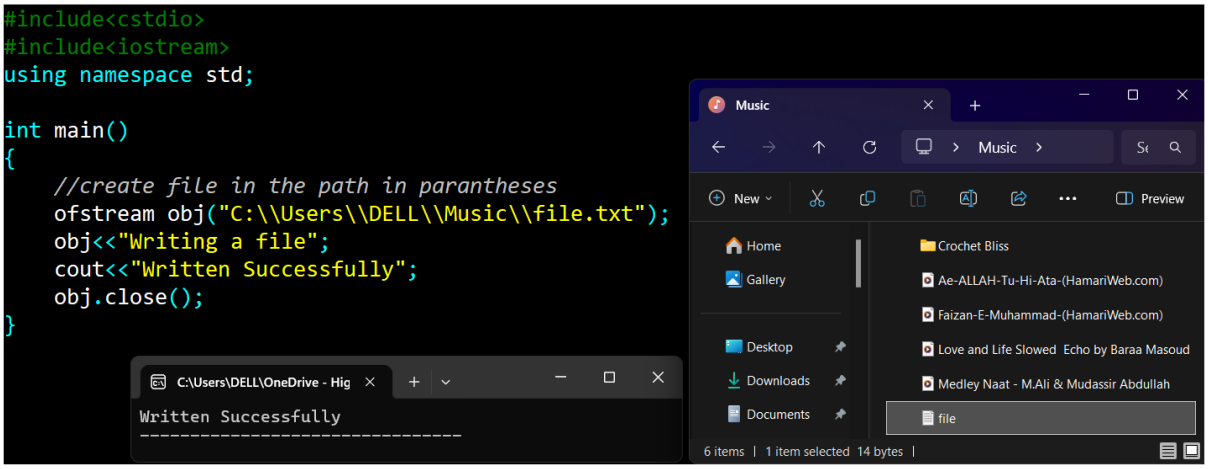
CODE:

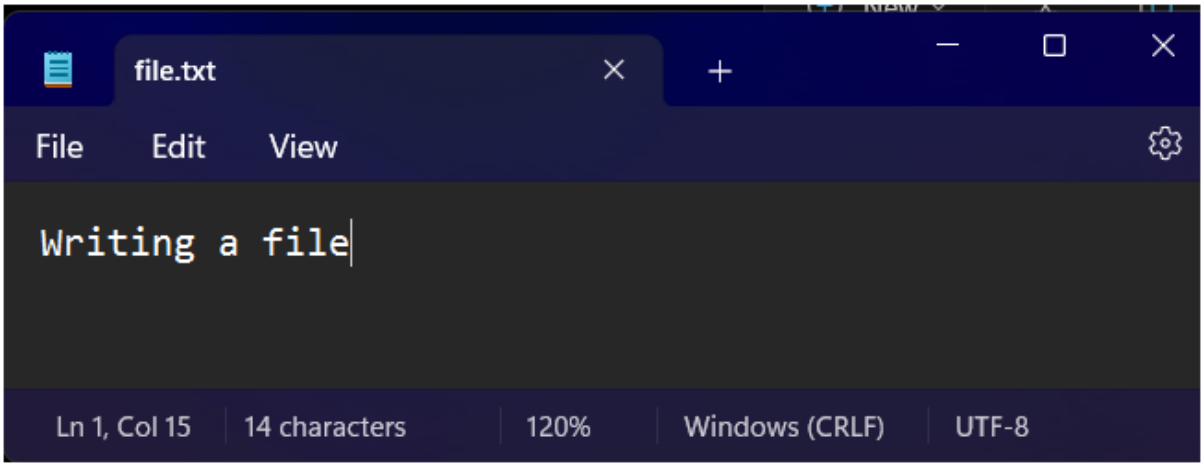
```
#include<iostream>
#include<fstream>
#include<cstdio>
using namespace std;
int main()
{

      //create file, write
      ofstream obj("C:\\Users\\Student\\Desktop\\file.txt");
      obj<< "this is my first file \n";
      cout<<"Written successfully"<<endl;
      obj.close();

      //read from file

      ifstream obj1("C:\\Users\\Student\\Desktop\\file.txt");
      if(obj1.is_open())
      {

      string st;
      while(getline(obj1,st))
      {
      cout<<st<<" ";
    }
    obj1.close();

    }
    else
    {
      cout<<"unable to open the file \n";
      return 1;
      }

      //Append data into file
      ofstream appx("C:\\Users\\Student\\Desktop\\file.txt", ios::app);
      appx<<"this is appended line \n";
      cout<<"\n Appended successfully";
      appx.close();
```

```
//Rename  file
string oldfile= "C:\\Users\\Student\\Desktop\\file.txt";
string newfile = "C:\\Users\\Student\\Desktop\\newfile.txt";
rename(oldfile.c_str(), newfile.c_str());
cout<<"\n renamed successfully";


//delete file
//string filename= "C:\\Users\\Student\\Desktop\\file.txt";
if(remove(filename.c_str())==0)
{
      cout<<"file deleted";
}
else
{
      cout<<"unable to open the file";
return 1;
}
```

}**OUTPUT:**

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

int main()
{
    //create file in the path in parantheses
    ofstream obj("C:\\Users\\DELL\\Music\\file.txt");
    obj<<"Writing a file";
    cout<<"Written Successfully";
    obj.close();
}
```





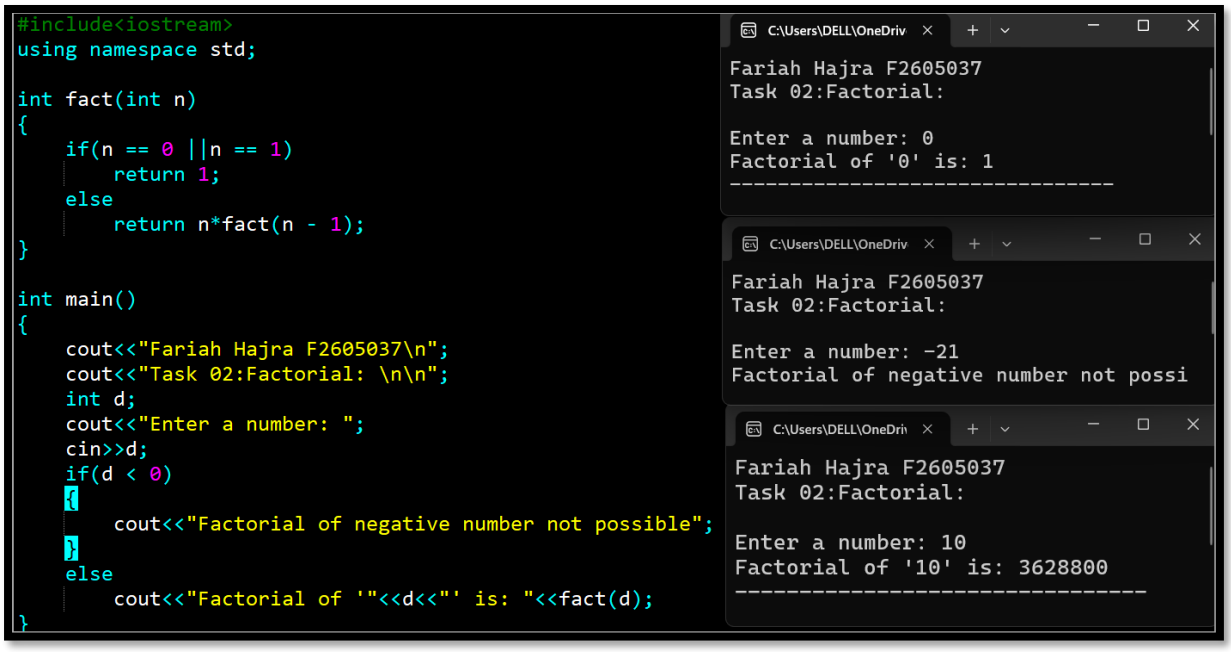
TASK 2:

Write a recursive function to calculate the factorial of a given number n. Test the function with different values of n.

CODE:

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

int fact(int n)
{
	if(n == 0 ||n == 1)
		return 1;
	else
		return n*fact(n - 1);
}

int main()
{
	cout<<"Fariah Hajra F2605037\n";
	cout<<"Task 02:Factorial: \n\n";
	int d;
	cout<<"Enter a number: ";
	cin>>d;
	if(d < 0)
	{
		cout<<"Factorial of negative number not possible";
	}
	else
		cout<<"Factorial of '"<<d<<"' is: "<<fact(d);
}
```

OUTPUT:



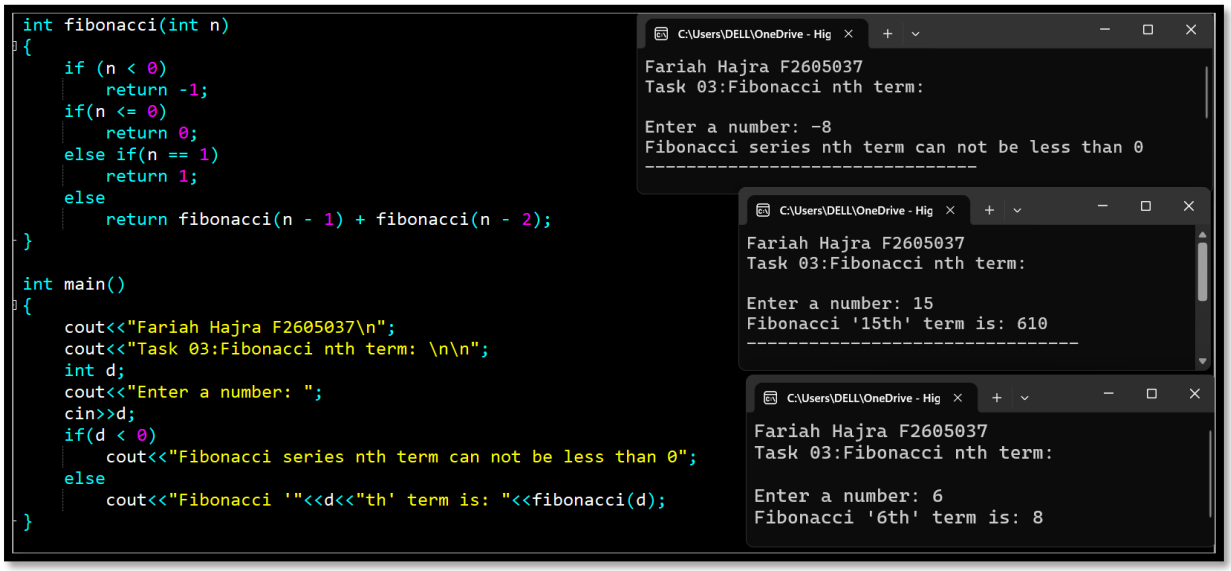
TASK 3:

Write a recursive function to generate the Fibonacci series up to the n-th term. Use this function in a program to display the series for a user-specified value of n.

CODE:

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

int fibonacci(int n)
{
	if (n < 0)
		return -1;
	if(n <= 0)
		return 0;
	else if(n == 1)
		return 1;
	else
		return fibonacci(n - 1) + fibonacci(n - 2);
}

int main()
{
	cout<<"Fariah Hajra F2605037\n";
	cout<<"Task 03:Fibonacci nth term: \n\n";
	int d;
	cout<<"Enter a number: ";
	cin>>d;
	if(d < 0)
		cout<<"Fibonacci series nth term can not be less than 0";
	else
		cout<<"Fibonacci '"<<d<<"th' term is: "<<fibonacci(d);
}
```

OUTPUT:



TASK 4:

Define a structure named Student with the following attributes: Name, Roll Number, and Marks.

- **Create an array of Student structures to store details of 5 students.**
- **Write a program to input details for these 5 students from the user.**
- **Display the details of all students who scored more than 75 marks.**

CODE:

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

struct scholar
{
 string name;
 int rollnum;
 int marks;
};

int main()
{
 cout<<"Fariah Hajra F2605037\n";
 cout<<"Task 04:Enetring data using Strucure: \n\n";
 int scholar.data[5];
 cout<<"Enter data of students(name, rollno., marks): \n";
 for(int i = 0;i < 4;i ++)
 {
       cin>>d[i].name;
       cin>>d[i].rollnum;
       cin>>d[i].marks;
 }
 cout<<"Data eneted having marks >75 is:  "
 for(int i = 0;i <= 4;i++)
 {
       if(d[i].marks >= 75)
 {
       cout<<"student"<<d[i].name;
 }
 else
       cout<<"Factorial of '"<<d<<"' is: "<<fact(d);

}
```

OUTPUT: